Goulstonian Lectures

ON

MODERN VIEWS UPON THE SIGNIFICANCE OF SKIN ERUPTIONS.

Delivered before the Royal College of Physicians of London

BY H. G. ADAMSON, M.D. LOND., F.R.C.P. LOND.,

PHYSICIAN FOR DISEASES OF THE SKIN, ST. BARTHOLOMEW'S HOSPITAL.

LECTURE I.

Delivered on March 12th.

MR. PRESIDENT AND FELLOWS,—I thank you for the great honour you have done me in asking me to deliver these lectures. The office of Goulstonian lecturer has not been held by a dermatologist since Dr. Liveing gave his classical lectures on leprosy in 1873—now nearly 40 years ago. I feel, therefore, that this occasion is a double honour—to dermatology, as well as to myself. I believe that I have only to put before you some of the current aspects of this branch of medical science in order to reveal a subject full of interest, not for the specialist only, but for all who study medicine, and to show that dermatology is worthy of the honour you have conferred upon it.

It has been frequently said of dermatology that it is burdened with too many names and with names which are often too elaborate. It is true that a very large number of skin eruptions have been described and given names—often long explanatory names; but this is perhaps not surprising if we remember that the skin is, from its position, not only exposed to all sorts of hurtful agencies from without and to numerous attacks or influences from within, but that this exposed position also makes possible the observation and description of details of the conditions resulting from these influences and assaults, which would be hidden from view if occurring in internal organs.

My purpose in these lectures is to inquire into the significance of some of these eruptions as interpreted by the light of our present-day knowledge, and to consider the reasons for their many differences in character and in distribution.

We now no longer regard them as natural objects, as did Willan, nor as pathological states, as did Hebra, but as the result of various hurtful agencies or abnormal influences affecting the skin. This is not to say that the accurate clinical and microscopical study of skin affections was not, and is not, essential, but that these studies are preliminary to that which we aim at—namely, the understanding of the real meaning of these eruptions.

This changed point of view is seen in the different manner of naming skin diseases formerly and now. The earlier names of skin diseases, such as eczema, acne, psoriasis, described the appearance or some clinical character of the eruption. Now, if we name a new disease, we try to indicate its origin and nature—as sporotrichosis, blastomycosis, toxi-tuberculide. But sometimes we are not able to go farther back than the pathological anatomy, as in parakeratosis, and sometimes, even now, we can only describe a clinical feature, as in granulosis rubra nasi.

ERUPTIONS DUE TO PHYSICAL INJURIES TO THE SKIN.

I propose in this lecture to deal mainly with those skin affections which result from the action of microbes, but I shall first refer briefly to one or two points concerning the reactions arising from local physical agents.

The action of all harmful agents upon the body tissues is first to cause degenerative changes (which may lead to death of the tissues), and these degenerative changes may give rise to reactive effects in the form of increased cell activity and serous exudation. But there are a few special features in regard to reactions of the skin to local physical injuries which deserve particular mention, because they give special characters to these reactions.

First, there is the part taken by the epidermis in these defensive efforts. This is well illustrated in the common corn. A long-continued slight friction or pressure will lead to a callosity or a *corn*, which represents a cell reaction confined to those parts injured—namely, the cells of the epidermis. It is a proliferation of the horny cells. It can hardly be called inflammation—yet it is a protective effort on the part of the tissues against injury.

But if the injury is somewhat more severe or more sudden, there is no time for proliferation of the horny cells, and damage is done to the more tender prickle cells, with the result that serous exudation is poured out from the vessels in the corium and a *blister* forms. Here it seems probable that the serous exudation is a protective effort against the poisons produced by death or damage of the epidermic cells, an effort to render the poisons inert by dilution, or perhaps by neutralisation by antitoxins.

Another effect of local injury to the skin, which is not observed elsewhere, is the production of a *wheal* by a sudden blow or by some chemical action. Here there is an exudation of serum into the deeper parts of the skin, which is often regarded as entirely the result of a reflex or vasomotor disturbance. But it is also maintained that the wheal is mainly, if not wholly, the result of damage to the endothelium of the vessel walls, and that it, too, represents an inflammatory reaction rather than a vasomotor disturbance.

So that all these disturbances which occur in the skin, as the result of physical injuries, represent protective reactions on the part of the tissues, and the nature of the disturbance, whether in the shape of corns, of blisters, or of wheals, varies according to the particular tissues which take part in the reaction.

An interesting and remarkable circumstance is the difference in length of time that elapses between the exposure to different kinds of injury and the resulting reactions. To a mechanical injury, for instance, the reaction may be almost immediate; to burns it is a little delayed; to freezing (as with carbon dioxide snow) still further delayed; after application of a strong light (as the Finsen light) it does not occur for several hours, and after exposure to X rays not for some days. It will be noticed that the more unusual the kind of injury the more delayed the reaction. A possible explanation of this fact is that the tissues of the body have acquired a hypersensitiveness to damage done to them by the more common forms of physical injury. This is a view of which I shall have something further to say in my next lecture.

ERUPTIONS DUE TO INVASION OF THE SKIN BY MICRO-ORGANISMS.

It has for long been taught that the inflammatory processes which occur in a tissue when it is invaded by micro-organisms represent a local effort at defence against that invasion. In the same way are to be explained the eruptions of the skin which result from local microbic invasion—the eruption which we see and regard as the disease is really a beneficial occurrence and represents the local effort at defence against invading organisms.

Although these facts are commonly recognised they are not always sufficiently insisted upon, and more especially as an explanation of the many differences in type of the resulting eruptions. In works on pathology the only types of reaction to microbic invasion of the skin to which any attention is paid are pustules and granulomata, but if we recall some of those eruptions which we know to be due to microbic invasion, we find that they may be of very varied aspect. For example, there are the scaly patches and broken hairs produced by ringworm fungus, the vesicular and pustular lesions resulting from other ringworm fungi, the scaly macules of pityriasis versicolor, the black-head or comedo and the papulo-pustule of acne vulgaris, the follicular pustule of staphylococcic invasion, the vesicle or blister rapidly drying into a crust of streptococcic infection, the different types of eruption—papular, nodular, warty and gummatous—the result of infection by tubercle bacillus, spirochæta pallida, sporotrichium, blastomycosis, actinomycosis, &c., and to these we may add the erythematous patches of a macular syphilide, the rose-spots of typhoid fever, and probably other erythematous eruptions.

If we ask why the skin should react in such apparently different ways to microbic invasion, the answer is that the skin is made up of a variety of cells having different structure, and that any or all of these cells may take part in these reactions. Sabouraud[1] has illuminated this matter by an

[1] La Défense de la Peau contre les Microbes, R. Sabouraud, Annales de Dermatologie et de Syphiligraphie, tome x., 1899, p. 729.

idea which greatly helps to make clear the meaning of all these different types of reaction, and I have already given some hint of this idea when speaking of the reactions to physical agents. Sabouraud's view is that we are to regard each cell as reacting in defence against microbic invasion by the carrying out of its own special function. For example, the function of the epidermic cells is to produce horny cells, so that when the horny cells take part in the reaction we get hyperkeratosis and exfoliation or scaling; the function of the connective tissue cells is to produce fibrous tissue, so that the part of the connective tissue cells in the business of defence is that of fibrosis; and the function of the polynuclear leucocytes is phagocytosis, so that when they are active we get pus formation. To these three types of reaction mentioned by Sabouraud it may be added that the blood-vessels respond by dilatation and by the exudation of serum and leucocytes. And it is by a combination of these processes in different degrees that the different appearances of the various eruptions are produced. I will try to make this idea more clear by means of a few examples.

Reaction of Cells of the Epidermis.

1. This photograph (Fig. 1) is from a section of a macule of *pityriasis versicolor*, which is a superficial affection due to the invasion of the horny layers of the epidermis by a fungus named microsporon furfur. In this section there is obviously a proliferation of the horny cells, and the grape-like masses of spores and mycelial threads of the fungus are seen between them. It represents very well a multiplication of the horny cells as a reaction to an invasion by the fungus. It cannot be called inflammatory, and yet it is a cell reaction to microbic invasion. It would appear to be an effort on the part of the horny cells to get rid of the fungus by exfoliation.

2. The next photograph (Fig. 2) represents the black-head or comedo of *acne vulgaris*, which is another example of local defence by the horny cells. The pilo-sebaceous follicle is plugged by a cocoon-shaped body, which is made up of concentric layers of horny cells encapsuling a mass of acne bacillus. It may be looked upon as a reaction upon the part of the horny cells to the invasion of the follicle by the acne bacillus. It is, perhaps, an attempt to cut off the acne bacillus from the deeper structures.

3. The next photograph (not here reproduced) is from a section of a common *wart*, which is almost certainly of an infectious nature, although the infecting organism has not yet been discovered. We may look upon the lesion as the reaction to invasion of the prickle-cell layers of the epidermis by some unknown organism. As a result there is a responsive proliferation of the prickle cells, the prickle cells afterwards being transformed into horny cells as normally.

In *molluscum contagiosum* (the next photograph, Fig. 3) we see much the same conditions, but the prickle cells are somehow interfered with in their normal progress towards horny cells, and there results an irregular imperfect cornification, seen in the so-called molluscum bodies. The photograph, which is from a very early lesion, shows that there is here also a cellular proliferation in the cutis.

4. In ringworm of the scalp we have, in the early stages, another example of reaction by proliferation of the horny cells. The earliest lesion produced on invasion of the scalp by ringworm fungus is a small, scaly patch, representing a reaction to the growth of the fungus in the horny cells. Very soon some of the fungus begins to grow down into the hair shaft, and eventually the hair becomes filled with fungus, so that it becomes fragile and easily broken off. Thus we get a scaly patch covered with broken stumps. But in ringworm we have something more than a simple hyperkeratosis or horny-cell proliferation. For although the fungus remains confined to the horny cells of the epidermis and of the hair substance, upon which it lives, yet it has evidently an influence also upon the deeper tissues.

Deep-seated Reactions.

Dr. George Thin, so long ago as 1878, pointed out the fact that while the fungus of ringworm never penetrated beyond the horny layer and the hair, yet there were signs of deep-seated inflammation in the form of a leucocytic exudation round the blood-vessels, and he suggested that this was due to the escape of soluble products of decomposition of the hair substance by the fungus acting as an irritant to the tissues, a view which nearly, though not quite, approaches the modern idea that the inflammation is a reaction to toxins secreted by the fungus.

Dr. Sabouraud has also shown that, even in the endothrix ringworms, where the fungus is entirely confined to the hair-shafts, there is evidence of cell exudation into the corium and of serous exudation into the epidermis around the mouth of the hair follicle. (Fig. 7.)

In the more inflammatory forms of ringworm vesicles or even bullæ may be formed on the surface of the skin, or deep-seated abscesses or granulomata may result without the escape of the fungus from the horny tissues.

We now come to two common eruptions, which are the result of the invasion of the skin by micrococci—namely, the streptococcic and staphylococcic impetigos.

Serous Exudations.

5. In *streptococcic* infections the eruption is a superficial vesicle or blister. The vesicle is formed between the horny layers of the epidermis and the stratum lucidum by an accumulation of serum between these layers. There is only a very slight leucocytosis, the prickle-cell layer and the cutis are œdematous, but there is little or no proliferation of the prickle cells. The main reaction here seems to be in the form of a serous exudation, attracted to the surface of the skin by the growth there of the streptococcus, and we must suppose, as in the case of the ringworm, that the serous exudation is in response to harmful toxins secreted by the streptococcus. (Fig. 8.)

Leucocytic Reaction.

6. In *staphylococcic* impetigo the infection takes place *viâ* the pilo-sebaceous follicle and results in the formation of a pustule round the follicle. The staphylococcus gives rise neither to an epithelial proliferation nor to marked serous exudation, but mainly to a reaction on the part of the polynuclear leucocytes which collect around the growths of the staphylococcus and devour them. This drawing is from a section of a very early pustule, and shows the collection of pus cells within the sebaceous gland, and also around the mouth of the follicle. (Fig. 9.)

Connective Tissue Reactions.

7. We must now consider some reactions due to microbic invasion of the deeper parts of the cutis, either by infection from without or by the blood-stream—namely, a type of reaction known as granuloma. As illustration of these reactions, two examples of different forms are seen in the granuloma of tubercle and of syphilis.

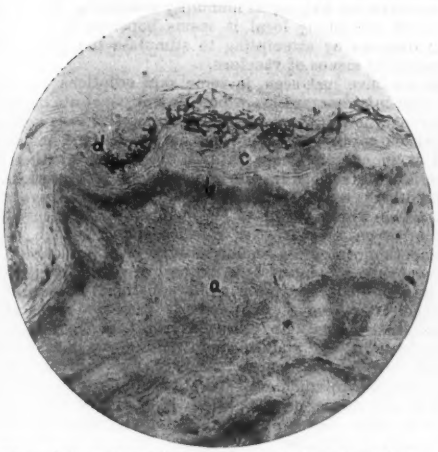
This photograph (Fig. 4) is from a section of a *lupus* nodule. It shows a dense cell infiltration in the cutis, which is seen to be made up of masses of cells arranged in groups or "tubercles." Each tubercle consists of a central zone of giant cells, around which is a zone of epithelioid cells, and outside this again a collection of plasma cells and lymphocytes. The whole infiltration is enclosed in a fibrous tissue capsule.

This lesion represents a reaction, mainly on the part of the fixed cells—the connective tissue and the endothelial cells—to the stimulation of the tubercle bacillus and its toxins. Regarded as a whole, it may be supposed to be an effort on the part of the fixed cells to surround the invading tubercle bacilli with fibrous tissue. But this is a slow process, and the fixed cells are perhaps poisoned by the toxins, for they do not straight away produce fixed cells of the same type, but they become converted into giant cells and epithelioid cells, which may be looked upon either as degenerate forms, which never reach the stage of fibrous tissue cells, or as modified forms taking on a special function under special circumstances. Sometimes we meet with lupus in which the epidermis has also become involved in the general tissue reaction and shows decided proliferation, and when this epidermal reaction is marked there results the warty character taken by some forms of lupus—lupus verrucosus.

8. In *syphilitic granulomata* we find different appearances, according to the form of eruption, whether a primary sore, a secondary papule, or a tertiary nodule or gumma. In all there predominates a particular form of cell which is seen also in tuberculosis, but less abundantly—namely, the plasma cell.

In this section (Fig. 5) of a syphilitic papule there are masses of plasma cells grouped around blood-vessels. There are no giant cells nor epithelioid cells, although these may be present in very chronic forms of syphilide. Under a higher

FIG. 1.

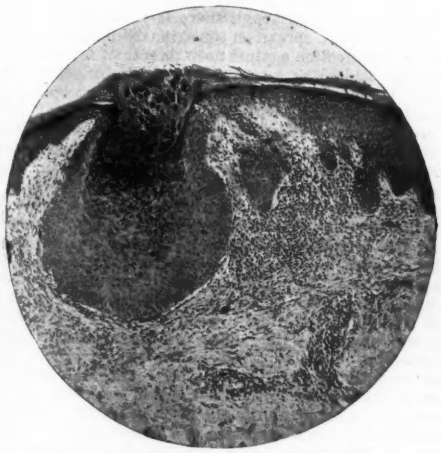


Micro-photograph of section of a macule of pityriasis versicolor. *a*, Corium. *b*, Prickle cell layers. *c*, Thickened horny layer. *d*, Mycelium and spores of microsporon furfur.

FIG. 2.

Comedo of acne vulgaris, showing mass of micro-bacillus in the mouth of the follicle surrounded by layers of horny cells.

FIG. 3

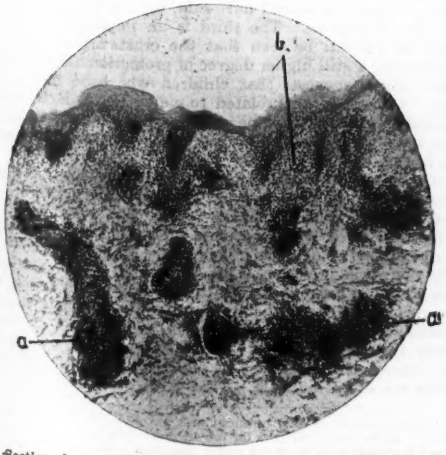


Molluscum contagiosum, showing a very early lesion.

FIG 4

Section of lupus nodule. *a*, Mononuclear cells and plasma cells around the blood-vessels at margin of "tubercles." *b*, Epithelioid cells and giant cells. *c*, Thinned epidermis stretched over the nodule.

FIG. 5.



Section of a syphilitic papule. *a*, Showing dense infiltration of plasma cells. *b*, Direct proliferation of connective tissue cells. (Kindly lent by Mr. J. E. R. McDonagh.)

FIG. 6.

Section of a syphilitic condyloma. *a*, Dense mass of plasma cells round the blood-vessels. *b*, Proliferation of the epidermis. (Mr. J. E. R. McDonagh.)

power some of the plasma cells show evidence of transition into connective tissue cells, and in many instances, especially in the primary sore, there appears to be direct proliferation of the connective tissue cells. Here the whole process again represents a fibrous tissue proliferation, but a more rapid one than in tuberculosis. The plasma cells are no doubt the result of fibrous tissue proliferation, and transition stages towards fibrous tissue cells. Less often we see the slower process with transition stages of epithelioid cells and giant cells, as occurs in tuberculosis.

The next photograph (Fig. 6) is from a section of a syphilitic condyloma and shows the epidermis taking part in the reaction as in lupus verrucosus.

The granulomatous reaction is seen also in many other skin infections, notably in sporotrichosis, blastomycosis, and actinomycosis, and it may also occur in very chronic staphylococcic infections.

Dilatation of Blood Vessels.

9. There is still one other form of reaction to be considered—namely, blood-vessel dilatation. It occurs in all the deep-seated reactions I have just discussed, but sometimes when a micro-organism attacks the skin from within, the reaction may be confined to the blood-vessels and to the parts immediately around.

It is only recently that we have learnt that an organism invading the skin by the blood-stream may give rise to reactions confined almost entirely to the blood-vessels, and unaccompanied as yet by any marked proliferation of the fixed cells. This is well seen in the roseola of syphilis, in which the presence of the spirochæta has been demonstrated, first by Veillon and Girard, in 1905, and since by other observers. Veillon and Girard's sections showed the capillaries dilated, engorged with blood, and, in some places, around them a commencing infiltration of mononuclear round cells, with spirochætæ in the terminal capillaries and also in the perivascular zones. In the same manner it has now been demonstrated that the rose rash of enteric fever results from the local presence of the typhoid bacillus, and also that in certain erythemas in pyæmic cases bacteria are present in the vessels.

The dilatation of the blood-vessels in these microbic erythemas may perhaps be looked upon as the result of damage to the vessel walls by the toxins of the micro-organisms; and possibly as an effort to carry protective bodies to the part attacked.

Eruptions Regarded as Defensive Reactions.

All these eruptions are to be regarded, then, as efforts of defence against microbes and their toxins, each element in the skin helping in its own way. And with this idea in mind it is interesting to note how all the defensive structures disappear as soon as the attacking agent has been removed; they are no longer needed and they crumble away. We see this happen when we depilate ringworm hairs by X rays; when we remove the crusts of an impetigo and apply an antiseptic to the eroded surface; when we evacuate a molluscum contagiosum or express an acne comedo; and one of the most striking examples is the disappearance of the eruptions of syphilis when the spirochæte is destroyed by mercury or "606."

From the practical side of the correct diagnosis and treatment of these infective eruptions the recognition of the fact that each micro-organism gives rise to its own distinct type of reaction is of the greatest possible importance. For to be able to correctly diagnose ringworm, acne, impetigo, lupus, and so on, one must be familiar with the ringworm stump, the acne comedo, the streptococcic vesicle, the staphylococcic pustule round a hair follicle, the lupus nodule, and the rest—that is to say, with the primary or essential lesion of each eruption.

GENERAL IMMUNITY IN SKIN DISEASES.

So far these eruptions have been considered as representing the local defences of the skin against microbic invasion. We may now inquire to what extent the local lesions represent the body's effort of defence and to what degree, if any, they are supported by a more general effort, or, in other words, we may study the question of general immunity in relation to infective skin diseases.

It is a question of great interest and a matter of considerable practical importance whether or not these skin affections do lead to the production of antitoxins or other antibodies in the blood—that is to say, whether they do or do not give rise to general immunity reactions. For if these defences are purely local it seems hopeless to try to cure such diseases by attempting to stimulate the general body defences by means of vaccines.

As we have just seen, in some skin eruptions we have to do with micro-organisms which do not penetrate beyond the superficial horny layers, as in ringworm, pityriasis versicolor, pityriasis capitis, acne, and possibly warts and molluscum, and it is of particular interest to know whether these superficial infections lead to general defensive reactions.

In others, as in streptococcic impetigo, we have micro-organisms which, under other conditions, may invade the deeper tissues of the body, which, curiously enough, in cases of impetigo contagiosa remain as superficial infections. Here it would be of interest to know why the streptococcus in impetigo does remain as a superficial infection, and whether it is because the body is protected by a general defensive reaction. In others, as the tubercle bacillus, the spirochæta pallida, and the sporotrichium, we have organisms which invade the deeper parts of the skin and yet do not give rise to sufficient general immunity to prevent infection of still deeper organs. Here it would be of interest to know to what degree of general immunity these deeper skin infections do give rise.

Evidence of Some Degree of General Immunity.

In regard to certain eruptions we can at once call to mind evidences of the production of some degree of general immunity. I have already mentioned the streptococcal impetigos. Here, although there is not sufficient immunity to prevent local spread on the skin, there appears to be considerable protection against deep infection, for children with impetigo seldom or never get erysipelas or general streptococcal infections, and this although the streptococcus is apparently identical with the streptococcus of Fehleisen.[2] A clinical fact which bears upon this question is that the younger the patient the more severe is the eruption, and the more likely the occurrence of deep infections. It would appear as though, while the child grows older, he gains some degree of immunity to the streptococcus, a circumstance which might be explained by slight repeated inoculations from the streptococci constantly present in the mouth or other mucous membranes in health. These three photographs (Figs. 10, 11, and 12) illustrate the different power of resistance to the streptococcus at different ages. The first is of an infant who died from a streptococcal bullous impetigo. Here there are enormous excoriations representing large ruptured bullæ. In an exactly similar case recently in St. Bartholomew's Hospital streptococci were found in pure culture in the skin lesions, in the heart's blood, in the lungs, and in the peritoneal fluid. That it was the same affection as impetigo was seen from the fact that a nurse in attendance got a streptococcic impetigo on the forearm.

The next photograph is from an ordinary case of impetigo contagiosa in a child and shows the large stuck-on crusts; and in these cases, as I have said, one never sees erysipelas or deep infections. The third is an impetigo in an adult; and here it will be seen that the crusts are much smaller, indicating a still higher degree of protection. An interesting fact, which suggests that children who have had impetigo are "protected," was related to me by Dr. A. E. Stansfeld—namely, that in China the mothers like to see their children get impetigo, because they say that they then never have it in later life.

Other examples of immunity production are afforded by certain clinical observations in regard to ringworm. It is well known that a human being who once gets cattle ringworm never again becomes affected. And there appear to be different degrees of immunity produced according as the ringworm infection is of a more or less virulent type; for while an inflammatory cattle ringworm in a human being is generally single, the more superficial human ringworm continues to spread, although the new lesions are smaller than the parent patch. The same thing may be seen in staphylococcic infections—a carbuncle is usually single, boils are often multiple. That is to say, only in the more

[2] Sabourand is of this opinion, and Mr. J. E. H. Roberts, who has kindly made many cultures for me from streptococcal skin eruptions, has found that they give the same reactions with the Gordon tests as does streptococcus pyogenes.

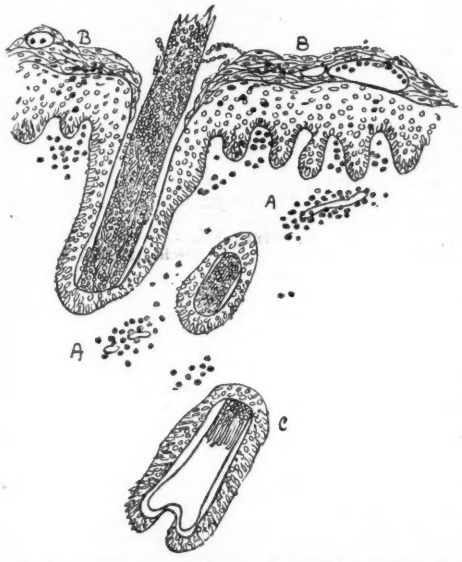
virulent type of infection is the patient protected against re-inoculation.

Lupus and General Immunity.

Lupus is another affection in which we have evidence of the production of general immunity. Clinically it is rare to see a patient with lupus who afterwards contracts tuberculosis of the lungs; at least, I think this is the general view, although recent statistics from the Finsen Institute at Copenhagen show that in those cases which were followed up tubercle had been found in the lungs in more than a third of those who had died. It cannot, however, be denied that patients with lupus often live many years, 20 or 30 or more, without contracting phthisis.

We have, indeed, experimental evidence of the production of antibodies in the positive—general and local—reactions to tuberculin which are given by patients with lupus. This reaction is, of course, well known, but as I wish to refer to it again later in another connexion I shall briefly recall it now. If we scratch the skin of a patient who has lupus and rub on to the scratch a little "old tuberculin," we see in the course of a few hours an inflammatory redness, sometimes with papulation, around the scratch. This reaction

FIG. 7.



Section of ringworm showing fungus confined to the hair shaft, and yet giving rise to deep-seated reaction. A, Cell-exudation round vessels. B, Proliferation and œdema of horny cells. C, Root of hair, showing that the fungus does not extend beyond the horny substance of the hair shaft.

(well known, of course, as the von Pirquet reaction) is believed to indicate that the patient has been rendered hypersensitive to the toxins of tubercle bacillus, by the presence of certain antibodies in the blood. To use a modern word, the patient has become anaphylactic—anaphylaxis (or as the Germans say *Ueberempfindlichkeit*) being in all likelihood an indication of a stage towards the production of a general immunity.

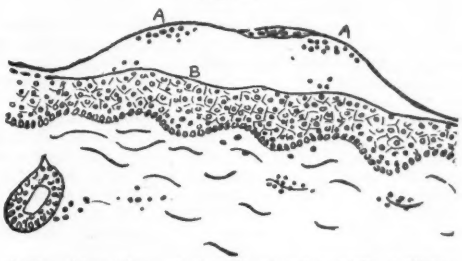
Defensive Reactions in Syphilis.

Syphilis, too, is a disease which well illustrates these phenomena of local defence or of general immunity production.

In the first place there is the primary sore, which may be regarded as representing a local defence against the spirochæte. At the end of about one week there is evidence that some of the micro-organisms have passed this barrier in the enlargement of the glands of the lymphatics draining the area of the sore. But there is also proof of more general changes in the body, for it has been experimentally demonstrated by Queyrat, and it is known as a clinical fact, that a second infection may take place anywhere on the body up to the twelfth day after the appearance of the chancre, while after that a superinfection is impossible, unless, indeed, as in Pinard's experiment, a very large amount of virus be put into a subcutaneous pocket.

What has happened is that a general immunity has been produced sufficient to protect against a new inoculation, but not sufficient to destroy the spirochætes which are already in the body, and which have presumably become adapted to their surroundings. For presently there appear the secondary symptoms, which are local reactions against the spirochætæ which have now become disseminated by the blood stream. These secondary eruptions may perhaps be regarded as cuti-reactions in a hypersensitised person, the immunity production now having reached its acme.

FIG. 8.



Section of impetigo contagiosa showing the vesicle resulting from streptococcal invasion. A, Roof of vesicle, consisting of horny layer. B, Base of vesicle, where the streptococci are found.

After a varying period of weeks or months these defensive reactions, general or local, get the upper hand, and the patient remains free from symptoms perhaps for many years. Then the immunity begins to wane, and latent spirochætæ again become active and give rise to fresh efforts at defence. These fresh efforts are seen in the tertiary eruptions, every tertiary lesion being probably a revival of some secondary lesion which occupied the same spot.

FIG. 9.

Early stage of follicular pustule (impetigo of Bockhart), showing collection of polynuclear leucocytes in and around the sebaceous gland A and hair follicle B.

That this is something more than a fanciful explanation is borne out by the results of the Wassermann test. During the first days after the appearance of the sore it remains negative; it is invariably positive during the secondary stage; and it may again become negative when the secondary stage is passed. And here I may mention two other phenomena which are of great interest in this connexion: first, that which is known as Herxheimer's reaction—namely, that at the beginning of a mercurial treatment the roseola may

become more marked, indicating probably that the killing of some spirochætæ has liberated more endotoxins, and so produced a further local defensive reaction; and, secondly, that the Wassermann reaction may be changed from negative to positive in the late stages of syphilis by the administration of "606," presumably because the latent foci of spirochætæ become unlocked, and once more act as stimulants to the production of antibodies.

Field for Research.

There is then a good deal of clinical evidence that skin eruptions of microbic origin may be associated with general immunity production; and this suggests that in these eruptions there exists a field for experimental research on the subject of immunity.

Theoretically it should seem possible to determine by laboratory methods whether antitoxins, bacteriolysins, precipitins, opsonins, and other antibodies were present in the serum of patients with superficial skin eruptions, but practically there are many technical difficulties in carrying out such experiments. In one recently discovered fungus infection of the deeper parts of the skin—namely, in sporotrichosis—a good deal of work has already been done in this direction. Widal and Abrami and others have demonstrated the presence of specific agglutinins and of precipitins in the serum of patients with sporotrichosis, and positive results have been obtained by fixation of complement tests, using cultures of sporotrichium as the antigen.

But perhaps from the dermatologist's point of view some of the most interesting researches have been those which have to do with the question of general immunity production in ringworm and favus. To these researches I shall now briefly refer.

IMMUNITY PRODUCTION IN THE SKIN ERUPTIONS DUE TO MOULD FUNGI.

The first experiments in this direction were those of Plato, a pupil of Neisser. Plato made a ringworm extract by pounding up the cultures from a virulent inflammatory ringworm and collecting the filtrate, which he called "trichophytine." Patients who had a deep-seated ringworm were injected subcutaneously with "trichophytine," with the result that there occurred a general reaction with malaise, sweating, and rise of temperature, and at the point of injection a local reaction in the form of papules or pustules. Moreover, the existing ringworm lesions became less active and gradually disappeared. These local and general reactions did not occur in patients affected by a superficial type of ringworm, nor in a healthy individual not suffering from ringworm.

Truffi repeated these experiments with similar results, and a few years later Bruno Bloch and Massini attacked the problem from another standpoint. They infected 70 guinea-pigs with different kinds of favus or ringworm, using mostly the achorion quinckeanum or mouse favus, but also a dog ringworm (microsporon lanosum), and a horse ringworm (trichophyton gypseum). After successful inoculation with the favus fungus there appeared about the sixth to eighth day favus cups on an inflammatory base. From the time that the lesions were established the animals were found to be proof against further inoculation either with favus or with the two other fungi. This immunity lasted for at least 18 months. With the dog ringworm and with the horse ringworm they got similar results and found that each fungus infection protected against all three.

These observers[3] also repeated Plato and Truffi's experiments with "trichophytine," with this difference, that they made their "trichophytine" from the filtrate of broth cultures and not from the pounded-up cultures, and that they used it, not as a subcutaneous injection, but by rubbing it into a scratch, as in the cuti-reaction with tuberculin. They obtained with all forms of infiltrating trichophytosis a distinct reaction in the form of a papule with an erythematous halo, the reaction varying in proportion to the virulence of the ringworm. But with ringworms which infected only the hair or nails, or in quite superficial ringworms, they got no cuti-reaction.

Bloch, who had successfully inoculated himself with a trichophyton two years previously, was able to obtain on his own arm a cuti-reaction from the same fungus, from another trichophyton, from filtrates prepared from microsporon of the dog and from microsporon of human origin, and from a favus prepared from achorion Schönleinii. These reactions varied in intensity with the filtrates employed, being most marked against filtrates from deep-seated ringworms and least with favus and the common microsporon. Fig. 13 shows the cuti-reactions and the control—the latter without any inflammatory halo.

During the past two years these experiments have been again carried out by Bruhns and Alexander, and also by Lombardo in Italy. Bruhns and Alexander were not able altogether to confirm the results obtained by Bloch and Massini, for only in three-fourths of their cases was a second inoculation unsuccessful. They concluded that this was because they had used ringworm of a superficial type, in which it was probable that antibodies were thrown out only in small quantities.

Lombardo,[4] as a result of a large number of experiments with different varieties of ringworm fungus, found that he, too, could not entirely confirm Bloch's conclusions, because he could not obtain complete immunity. He did, however, get evidence of immunity reaction in so far as he found that a second and a third inoculation gave rise to reactions which appeared more quickly and which lasted a shorter time, indicating a supersensitiveness or anaphylaxis, and that this condition of anaphylaxis lasted for at least a year and a half. He further demonstrated a very interesting fact which had also been observed by Bloch—namely, that in order to obtain this immunity reaction it was necessary for the skin itself to be infected, and that subcutaneous injections of living or of dead fungus and intramuscular or intravenous injections of endotoxin, or of a filtrate of the culture in liquid media, would not produce it.

In some recent experiments of my own, made with an extract got from cultures from groin ringworm, I have been unable to obtain cuti-reactions either in cases of groin ringworm, or of scalp ringworm, or in one case of a virulent inflammatory type of ringworm of the beard. This is hardly the result I had expected, since in groin and interdigital ringworms the eruption is often eczematoid, and is accompanied by itching—both circumstances suggesting the excretion of a toxic irritant. It must be noted, however, that the extract was obtained, not by Bloch's method of using the filtrate from a broth culture, but by grinding up the fungus itself and using the expressed juice, as in Plato's method. Further researches with the filtrate from broth cultures of this fungus and of the fungus from the virulent beard ringworm are in progress, the results of which I shall publish later.

The researches of Bloch and of others which have been quoted seem to indicate that it is only in those ringworms which produce distinct inflammatory lesions that general immunity reactions can be readily demonstrated. Yet there is some reason to believe that even the more superficial ringworms are not merely saprophytic in the horny tissues, but that they also give rise to some degree of general immunity reaction.

Relations of Immunity Production to Treatment.

From the point of view of the treatment of ringworm by vaccines or by trichophytines these observations on immunity production do not greatly help us. If, as we are told, the principle of vaccine treatment is to prepare the invading micro-organisms for destruction by phagocytes, the good results sometimes obtained in staphylococcic infections are readily explained. But in the case of the ringworm fungus, which remains locked up in the horny tissues, and in the destruction of which the phagocytes take no part, it is difficult to understand how vaccines can be of use.

From this same point of view it is not easy to see upon what principle vaccines of acne bacillus are given in simple acne. It seems reasonable to suppose that staphylococcus vaccines would do good in pustulating stages of acne, but not that acne bacillus vaccines would clear up the comedones which form the basis of an acne eruption. And the ill-success which attends this treatment in the experience of many appears to confirm these misgivings.

Even if we go beyond the opsonin theory and suppose that vaccines help to stimulate all those forms of immunity

[3] Studien über Immunität und Uberempfindlichkeit bei Hyphomyzetenerkrankungen. Br. Bloch und R. Massini. Zeitschrift für Hygiene und Infectionskrankheiten, Band lxiii., 1909, p. 68.

[4] Ricerche sulla Ipersensibilità ed Immunità in Alcune Dermatomicosi. C. Lombardo: Giornale Italiano delle Malattie Veneree e della Pelle, vol. iii., 1911, p. 70.

reaction which are opposed to the micro-organisms in question, it is difficult to comprehend how they could be of help against ringworm invasion. For since it has been demonstrated that immunity reactions occur only when the ringworm fungus actually grows in the epidermis, how can we hope to stimulate the production of antibodies by the subcutaneous injection of vaccines? Indeed, it would seem, on reflection, that this observation of Lombardo and of Bloch, that immunity in ringworm occurs only when the skin is infected, has a very important bearing upon the whole question of immunity production and of vaccine treatment in general. Because, if it is found that certain micro-organisms can give rise to immunity reactions only when they are actively growing in certain tissues, little result can be expected from the injection of these micro-organisms, dead or living, into the circulation.

Dr. F. W. Andrewes showed in his Croonian lectures[5] that

FIG. 10.

An infant who died from streptococcal bullous impetigo. The bullæ are large and the eruption is extensive.

FIG. 11.

Typical case of impetigo contagiosa, showing the large "stuck on" amber crusts.

FIG. 12.

Impetigo contagiosa in an adult. The crusts are smaller than in a typical impetigo in a child.

FIG. 13.

Cuti-reaction on forearm in a person previously inoculated with ringworm. The five patches from left to right represent the cuti-reaction to trichophytin (two sorts), microsporin (two sorts), and favin. The point to the right slightly lower than the five patches represents the control with no reaction. (Kindly lent by Dr. Bruno Bloch, of Bâle.)

[5] THE LANCET, July 16th, 1910, p. 155.

certain non-pathogenic bacteria could give rise to immunity reactions when inoculated in a living state into rabbits, but this might, as he suggested, be due to some poisonous property of the protoplasm of those particular micro-organisms, for other non-pathogenic bacteria gave rise to no reactions. And it has yet to be proved that every pathogenic micro-organism gives rise to immunity reactions when injected in a non-living or even in a living condition into the circulation. And unless a micro-organism does this, how can it be of use as a vaccine?

In conclusion, it must be admitted that we are able as yet to make but little practical use of our knowledge of immunity reactions in the treatment of skin diseases, and with our present knowledge we generally do better to rely upon methods which aim at the removal or direct destruction of the micro-organisms which give rise to these eruptions. Nevertheless, this study of immunity production in skin affections of microbic origin is in itself of great interest, and in my next lecture I shall endeavour to show that it may also help us to understand the significance of many eruptions of non-microbic origin.

PHARMACOLOGY AND THERAPEUTICS OF LECITHIN AND PHYTIN.

BY WILLIAM BAIN, M.D. DURH., M.R.C.P. LOND.

(*From the Physiological Laboratory, King's College, London.*)

PHOSPHORUS is an essential constituent of tissue cells and plays an important part in the vital functions of the organism. It is present in the tissues partly in the form of inorganic phosphates and partly as organic compounds. The principal organic compounds in which it occurs are:—(1) Nucleins and nucleo-proteins, which are the main constituents of cell-nuclei, and are also present in considerable amount in cell-protoplasm; (2) phospho-proteins, of which the best known examples are caseinogen, the principal protein of milk, and vitellin, the principal protein of egg-yolk; the presence of phosphorus in such proteins indicates its value for the nutrition of the young and growing organism; (3) certain lipoids known as the phosphatides or phosphorised fats, of which the most familiar example is lecithin; and (4) phytin, which is the main phosphorised material in many plants and seeds, and which has been shown to be a compound (ester) of inosite and phosphoric acid.[1]

Many investigations have been carried out on the relative importance of inorganic and organic phosphorus compounds from the therapeutic point of view. Clinical experience has led many to doubt whether inorganic phosphates possess any substantial therapeutic value, and special interest is attached to recent work in which organic compounds of phosphorus such as lecithin and phytin have been employed. The view that proteins which contain phosphorus have any special value over inorganic phosphates has not, however, been admitted without question. Bayliss and Plimmer,[2] in their studies on the digestion of caseinogen and ovo-vitellin, showed that their phosphorus is split off and converted into inorganic phosphates to a very large extent before absorption takes place. More recently Lipschütz[3] discusses the question whether feeding on the milk proteins has from the phosphorus point of view any special advantage in promoting growth. He does not regard his experiments as absolutely conclusive, but so far as they go they are considered to show that in phosphorus metabolism the inorganic phosphates are equally beneficial, and if organic phosphorised material is given, the phosphorus enters the blood-stream as inorganic phosphate.

Fingerling[4] experimented on ruminants with various organic and inorganic compounds of phosphorus, and found great differences in the extent to which the phosphorus is utilised; but this appears to be mainly due to physical differences in the fodder, the cell walls of the food material being in certain cases relatively indiffusible to the phosphorus compounds, which are therefore prevented from being absorbed. In a later paper[5] the same author, using ducks, states that these animals can build up their phosphorised constituents (lecithin and nuclein bodies) out of the inorganic phosphates administered to them, but there does not appear to be any conclusive statement that the rest of their diet was free from organic phosphorus compounds. Even if it is admitted that Lipschütz is correct, one doubts whether any medical man would be bold enough to substitute in infant feeding an equivalent quantity of inorganic phosphate for the caseinogen in milk, the food provided by nature. It is not *a priori* probable that nature should have evolved a complex substance like caseinogen unless it has some preferential value in nutrition, even although its phosphorus may be in great measure separated off as inorganic phosphate during the digestive process.

In reference to the lipoids, their importance in nutrition is undoubted, and my clinical experience fully confirms that of previous observers in showing the therapeutic value of lecithin. Many years ago Hoppe-Seyler pointed out that lipoids are as universally distributed as are the proteins wherever the phenomena of life are observable, and the work of biochemists during recent years has fully substantiated this view. They are usually present in small quantities, but they are nevertheless indispensable, and probably constitute a necessary constituent of the bio-plasmic complex. In one tissue in particular—namely, nervous tissue—they are quantitatively abundant.

W. Stepp[6] has published some very striking experiments on young mice; if he fed them on milk freed from lipoids by extraction with alcohol and ether, they died in a few weeks. He proved that this is not due to alterations in the saline constituents of the food, nor to the removal of the fats; for instance, fat added to the extracted milk does not delay the fatal result, but the addition of the lipoids obtained from the ether-alcohol residue does. The lipoids of milk are not abundant, but they are evidently necessary in the nutrition process. The importance of small quantities of certain constituents of food is now being recognised in many other cases. For example, we know that certain proteins, such as gelatin and the zein of maize, are inefficacious in promoting growth and maintaining nitrogenous metabolism because they are destitute of small quantities of certain "Bausteine" (building stones, or ultimate cleavage products). Polished rice produces beri-beri, and this disease may be prevented by added the "polishings" to the rice before it is taken.[7] It is still uncertain what is the nature of the protective substance in the outer layers of the rice grain, but it may be pointed out that these layers are richer in phosphorus than the interior, and whatever the substance in question may be it is undoubtedly present in very small amount. C. Funk,[8] who regards it as an organic base, calculates that its amount is probably not more than 0·1 gramme per kilogramme of rice. Whether a similarly essential material occurs in the outer layers of the wheat grain is still problematical, but it is quite possible that the agitation in favour of so-called "standard bread" may have some justification; there may be some substance synthesised in plant life which the animal cell cannot easily make for itself, and quite minute quantities of this may be of considerable nutritive value. Now that we are acquainted with the physiological importance of extremely small amounts of certain substances, of which adrenalin is a striking example, we have some rational sort of explanation of the possible rôle played by small quantities of other substances.

Returning to lecithin, it can hardly be supposed that doses of a few grains daily produce their beneficial effects by increasing in any substantial degree the store of lecithin in the body cells or in the central nervous system, even if all given is completely assimilated. To speak of it, as certain advertisements do, as "the brain food" is hyperbole. Any effect it may have on the brain is indirectly produced, and is secondary to improved general health. It must be regarded more of the nature of a stimulus to nutritive or metabolic processes.

The lipoids contained in cells (according to some mainly in the cell membrane) play some part in the relationship of such cells to toxins. Our knowledge on this subject is new

[1] C. Neuberg: Biochemische Zeitschrift, Band ix., p. 557, 1908.
[2] Journal of Physiology, vol. xxxiii., p. 439, 1905–06.
[3] Pflüger's Archiv, Band cxliii., p. 99, 1911.
[4] Biochemische Zeitschrift, Band xxxvii., p. 266, 1911.
[5] Ibid., Band xxxviii., p. 448, 1912. A similar conclusion in the case of rats is arrived at by E. V. McCollum, American Journal of Physiology, vol. xxv., p. 141, 1909.
[6] Zeitschrift für Biologie, Band lvii., p. 135, 1911.
[7] Fraser and Stanton: The Etiology of Beri-beri. Studies from the Institute for Medical Research, Federated Malay States, No. 12, 1911. THE LANCET, Sept. 16th, p. 828.
[8] Journal of Physiology, vol. xliii., p. 395, 1911. THE LANCET, Nov. 4th, 1911, p. 1266.

and scanty, so it is at present difficult to make any positive statements. The matter has been mainly studied in relation to red corpuscles, and the hæmolysins (such as snake venom, saponin, &c.) which break them up. There is, however, some evidence that the cholesterin in the envelope of the red corpuscles is a protective agent. A few years ago Preston Kyes stated that lecithin is the amboceptor which anchors the hæmolysin on to the corpuscles. But more recent research has failed to confirm this view, and the compounds which Kyes described as lecithides are impure mixtures of several substances. It is much more probable that the real agent at work is a lipolytic or fat-splitting enzyme; this decomposes the lecithin of the cell, and liberates oleic acid and deoleolecithin (that is lecithin minus its oleic acid radical); it is these cleavage products which dissolve out the hæmoglobin and so destroy the corpuscles.

If we assume, as Ehrlich does, that the assimilation of a poisonous protein or toxin ending in the destruction of a cell is a parallel process to the assimilation of a nutritive protein which leads to the growth of the cell, or to its repair, we have some conception of the way in which lecithin may act as a metabolic stimulus, although the original view of Preston Kyes cannot any longer be considered tenable.

With this introduction I will now pass to consider in detail the two substances mentioned in the title of this paper; my own observations have been partly experimental on animals and partly clinical on man.

Lecithin.

Lecithin is a type of the phosphatides; it is a waxy material soluble in alcohol and other solvents of fats, and insoluble in water. It contains about 4 per cent. of phosphorus. On cleavage it yields glycerophosphoric acid, fatty acid, and a nitrogenous base, choline. To obtain it in a pure condition is a task of great difficulty, and when obtained it easily decomposes. The commercial product is usually prepared from egg-yolk, and is by no means pure, but as this is the substance employed therapeutically it is this which I have used in my work.

The effect of its administration upon the urine is to increase the amount of total nitrogen and urea. There is usually a slight diminution of the uric acid output. Marfori[9] states that the phosphorus is completely excreted in the urine after subcutaneous injections, but that the lecithin phosphorus is retained and assimilated when lecithin is given by the mouth. These changes in the urine persist for five months under the continuous administration of lecithin, after which they disappear.[10] Serono,[11] who was the first to introduce it clinically, stated that its action was similar to, though more rapid than, that of arsenic. Desgrez and Ali-Zaki,[12] experimenting with guinea-pigs, concluded that lecithin increased the utilisation of nitrogen, slightly diminished the excretion of phosphoric acid, and markedly increased the weight of the animals. In cases of anæmia it appears that the urinary phosphates are increased by the administration of lecithin.

Regarding its effect upon the blood, there is general agreement that it increases the number of red corpuscles and the hæmoglobin, and that pronounced leucocytosis is induced by subcutaneous injections; its formative action on the cellular elements of the blood was first brought to the notice of the profession by Danilewsky[13] in 1895; his results have received since then abundant confirmation. Levy[14] used a preparation of lecithin called lecitogen, containing 1·82 per cent. of phosphorus, which was added to a fixed diet given to five patients suffering from secondary anæmia. He found a decided improvement to occur in the number of red corpuscles and also in the hæmoglobin content. He also observed an increase in the ordinary phosphates during the lecitogen period, whilst the nitrogen excretion was not essentially altered.

Fürst[15] also had noted the increase of appetite, improvement in nutrition and in the condition of the blood. He obtained his best results if the administration of the drug was interrupted now and again and recommenced after a week's rest. He found it specially useful in patients suffering from over-stimulation of the cerebral functions, but it is difficult to accept his dictum that the rise and fall of psychical activity depend on the lecithin content of the brain substance.

In connexion with nervous diseases one may also refer to a paper by G. Peritz.[16] He found that in tabes dorsalis an abnormal amount of lecithin is eliminated in the fæces, and that intramuscular injections of lecithin considerably diminished this loss. He thinks that the injury to the central nervous system in tabes is accompanied by a loss of lecithin in that region, and there is no doubt that chemical breakdown in the nervous tissues is a factor in all such degenerative conditions. He has also views about a possible combination between lecithin and the antitoxin of syphilis which it is unnecessary here to discuss more fully. Other clinical effects noted by various observers are enhanced appetite, augmented vitality, and an appreciable increase in weight, especially in children. A slight, but distinct, aphrodisiac effect also occurs, and this I have seen in two of my own patients; no doubt it is secondary to improvement in nutrition. Some have mentioned it is beneficial in diabetes,[17] but of this I have no experience. H. Claude[18] extols its use in tuberculosis.

It will be seen from this review of the previous literature that there is a general consensus of opinion that lecithin has a most favourable influence upon the nutritive condition, and especially upon the blood. Its other effects are doubtless secondary to this. The various statements regarding its effect on the urinary constituents are somewhat conflicting. My own experience with lecithin extends over the last three years, during which time I have prescribed it extensively. I have invariably given it in pill form, 2 grains three times a day. It never disagrees with patients, and a further advantage it possesses is that it may be taken in conjunction with almost any other drug. I can fully confirm the statements of previous observers as to its usefulness, especially in anæmia, and in convalescence from more or less acute illnesses. It can also be prescribed with advantage in tuberculosis and rickets. I have further found it beneficial in many cases of neurasthenia and allied disorders. In the case of sufferers from nervous tension, or overtaxed mental powers, I regard lecithin as a useful adjunct to our armamentarium; and it has sometimes proved efficacious in grain doses in cases of insomnia associated with neurasthenia.

As the conditions of my practice do not lend themselves to the undertaking of metabolic observations on the patients, I attach but little importance to the possible changes produced in their urine by the administration of lecithin as a drug. I regard the effects it produces to be in the main due to an improved state of nutrition, which is gauged by the condition of their blood. I have therefore performed some experiments on rabbits in order to investigate this point more fully. The following may be quoted in full:—

Rabbit No. 1.—Control Animal.

Date.	Weight in grammes.	Red corpuscles per c.mm.	White corpuscles per c.mm.	Hæmoglobin percentage.
Jan. 14th	1876	6,000,000	7038	69
,, 26th	2032	5,960,000	7460	70
,, 29th	2032	5,780,000	6976	70

Rabbit No. 2.—This animal had added to its food 0·5 gramme of Merck's lecithin daily:—

Date.	Weight in grammes.	Red corpuscles per c.mm.	White corpuscles per c.mm.	Hæmoglobin percentage.
Jan. 9th	2273	5,480,000	7,304	72
,, 16th	—	5,640,000	7,929	74
,, 21st	2241	5,760,000	9,168	78
,, 27th	2275	5,980,000	10,702	80
Feb. 3rd	2510	6,200,000	11,093	82
,, 6th	—	6,480,000	11,563	86

[9] Archiv. Physiol., v., p. 198.
[10] Sollmann: Text-book of Pharmacology, 1906.
[11] Archives Italiennes de Biologie, vol. xxvii., p. 349.
[12] Comptes Rendus de la Société de Biologie, vol. liii., p. 294, 1900.
[13] Comptes Rendus de l'Académie des Sciences, vol. cxxi., p. 1167, 1895.
[14] Berliner Klinische Wochenschrift, 1905, p. 1242.
[15] Therapeutische Monatshefte, Band xvii., p. 400, 1903.
[16] Berliner Klinische Wochenschrift, 1908, No. 2.
[17] See, for instance, H. Hughard; Journal des Praticiens, June, 1901.
[18] Revue de la Tuberculose, vol. viii., December, 1901.

Rabbit No. 3.—This animal received subcutaneous injections of lecithin, one or more capsules of Billon's ovo-lecithin being used on the dates mentioned.

Date.	Injection.	Weight in grammes.	Red corpuscles per c.mm.	White corpuscles per c.mm.	Hæmoglobin percentage.
Jan. 15th ...	1 capsule.	2160	6,720,000	8843	85
,, 18th ...	1 ,,	—	—	—	—
,, 20th ...	—	—	6,880,000	12,226	88
,, 21st ...	1 capsule.	—	—	—	—
,, 22nd ...	1 ,,	—	7,120,000	11,798	89
,, 23rd ...	—	—	—	13,012	89
,, 26th ...	—	2370	6,960,000	11,329	87
,, 28th ...	—	—	7,060,000	10,396	88
,, 29th ...	1 capsule.	—	—	—	—
,, 30th ...	—	—	7,180,000	12,015	90
Feb. 4th ...	2 capsules.	—	—	—	—
,, 5th ...	—	2396	7,240,000	14,062	90

These few typical experiments are quite sufficient to illustrate the fact that lecithin administered either by the mouth or under the skin caused a marked increase in the number of red and white corpuscles, and in the percentage of hæmoglobin. This is evidently due to increased activity of the blood-forming organs. The increase in body weight is not very marked, and occurred also in the control rabbit. The animals, however, were full grown, and so any decided increase in weight would hardly have been expected. Differential counts of the colourless corpuscles were made, and the increase was found to have chiefly occurred in the large mononuclear lymphocytes. The rabbits which received lecithin either by injection or in their food were manifestly in robust health.

Phytin.

Phytin is a dense white powder of acid taste, and soluble in water. It is the main organic phosphorus material of green plants, and it has been shown that from 80 to 90 per cent. of the total phosphorus in many seeds is present as phytin. It is usually present in combination with bases (calcium, magnesium, and potassium). It was first isolated by Winterstein[19] and later by Posternak,[20] but its true chemical structure as an inosite phosphoric acid ester was made out by Neuberg as already stated. It is split into its two constituents by an enzyme contained in the seeds and thus is rendered available for the nutrition of the growing plant; the enzyme concerned is called *phytase*. The equation representing its cleavage is as follows:—

$$\underset{\text{(Phytin)}}{3C_6H_{18}P_6O_{24}} + 3H_2O = \underset{\text{(Inosite)}}{(CHOH)_6} + \underset{\text{(Phosphoric acid).}}{6H_3PO_4}.$$

The evidence regarding the value of phytin in animal nutrition is rather conflicting, some writers extolling its therapeutic value in no measured terms, whereas pharmacologists have as a rule obtained no positive results. Scofone[21] found that the greater part of the phytin phosphorus was absorbed and passes ultimately into the urine; only a small fraction leaves the body in the fæces. This result was confirmed by Giasco.[22] Jordan, Hart, and Patten[23] made experiments on milch cows; they found no phytin as such in the fæces; in some cases the phosphorus was stored in the body, and it ultimately is excreted as inorganic phosphate partly in the urine, but chiefly through the fæces.[24] They incline to the view that phytin may exert specific physiological influences. Fingerling[25] in his experiments on lambs and goats found that the phytin phosphorus was not utilised to much more than the extent of 50 per cent. Hart, McCollum, and Fuller[26] state that as a supply of phosphorus, phytin in pigs gave no better results than the inorganic phosphates.

If phytin is utilised by animals, the question arises how it is digested. It has been ascertained that the enzymes at present known to exist in the alimentary tract (ptyalin, pepsin, trypsin, &c.) have no action on phytin. If, therefore, phytin is to be rendered available for utilisation in the animal body, the cleavage must be due to a specific enzyme (phytase), either in the alimentary canal or in the event of its being absorbed unaltered, such an enzyme must be sought for in the tissues. Search for phytase in the digestive juices having failed, Secheret[27] suggested that the epithelium of the intestinal wall is the seat of the decomposition. McCollum and Hart[28] looked for the enzyme in certain tissues of the calf; they found no phytase in muscle and kidney, but in the liver and blood they obtained what they interpret as a positive result.

Dr. R. H. Aders Plimmer, who has recently worked at the subject but has not yet published his results, has kindly allowed me to state that his search for phytase in the animal kingdom, including both carnivora and herbivora, has been entirely negative. If phytin is metabolised at all, he regards this as due to enzymes swallowed with the vegetable foods ingested; in this it would, therefore, resemble cellulose.

The question does not seem to have been experimentally investigated in man. Certain clinical observers,[29] however, have stated that the main results of the administration of phytin are a remarkable increase of appetite with a concomitant increase of strength and body weight, and an improvement in the condition of the blood; an aphrodisiac effect has also been described.

I made a few experiments on rabbits with phytin at the same time as those performed with lecithin, and the following tabular statement gives the results of the blood examination.

Rabbit No. 4 received with its food 0·25 gramme of phytin daily.

Date.	Weight in grammes.	Red corpuscles per c.mm.	White corpuscles per c.mm.	Hæmoglobin percentage.
Jan. 14th	1832	5,300,000	8046	76
,, 19th	,,	5,440,000	8040	77
,, 21st	2105	,,	8216	,,
,, 26th	2207	5,560,000	8437	78
Feb. 1st	,,	5,480,000	8670	77
,, 6th	2330	5,640,000	8746	79

Rabbit No. 1, which at first served as a control animal (see previous tables), was subsequently utilised for an experiment with phytin; this was injected subcutaneously in doses of 0·25 gramme on the days marked "Inj.":—

Date.	Weight in grammes.	Red corpuscles per c.mm.	White corpuscles per c.mm.	Hæmoglobin percentage.
Jan. 29th, Inj. ...	2032	5,780,000	6976	70
,, 30th	—	6,120,000	8594	71
Feb. 1st, Inj.	—	—	—	—
,, 2nd	2044	6,400,000	9453	72
,, 3rd, Inj.	—	6,860,000	9695	74
,, 4th, Inj.	—	—	—	—
,, 5th	2054	6,960,000	9414	76

It will be seen from these figures that although the animal employed was herbivorous, the results are not encouraging; there is a slight increase in the corpuscular elements and in hæmoglobin, which is a little more marked in the animal to whom the material was administered hypodermically, but it is nothing comparable in extent to that produced by lecithin. I have no experience of phytin in clinical work.

General Conclusions.

1. My clinical experience leads me to look upon lecithin as a valuable drug in cases of anæmia and debility. I

[19] Berichte der Deutschen Chemischen Gesellschaft, Band xxx., p. 2299, 1897.

[20] Revue Générale de Botanique, vol. xii., p. 5, 1900. Comptes Rendus de l'Académie des Sciences, vol. cxxxvii., p. 202, 1903.

[21] Giorn. d. R. Acc. di Medicina di Torino, vol. lxvii., p. 630, 1905.

[22] Ibid., vol. lxviii, p. 369.

[23] American Journal of Physiology, vol. xvi., p. 268, 1906.

[24] Mendel and Underhill (American Journal of Physiology, vol. xvii., p. 75, 1906) differ from Jordan, Hart, and Patten as to the excretion of the phosphorus; it goes out mainly by the urine. They found administration of phytin to have no unfavourable results, but it produces no marked or characteristic effects upon general health or metabolism.

[25] Loc. cit.

[26] American Journal of Physiology, vol. xxiii., p. 276, 1908.

[27] Thèse de Paris, 1904.

[28] Journal of Biological Chemistry, vol. iv., p. 497, 1908.

[29] See, for instance, J. Loewenheim, Berliner Klinische Wochenschrift, Band lxi., p. 1220, 1904.

regard it as a metabolic stimulus, for one can hardly conceive that the small amount of extra nitrogen and phosphorus administered in doses of a few grains daily can act as a tissue-former in any substantial degree.

2. Its beneficial effect upon the nervous system is to be regarded as secondary to improvement in general nutritive condition, and not because lecithin is a "brain food."

3. Its most striking effect is seen in the blood, the red corpuscles, white corpuscles (especially the lymphocytes), and hæmoglobin percentage all being increased. Illustrative experiments in rabbits are given in detail.

4. Although there is some evidence that phytin (inosite phosphoric acid ester), an important phosphorised constituent in vegetable tissues, may be of some value in herbivora, the evidence in favour of its utilisation in carnivora and in man is either negative or conflicting. My experiments on rabbits were not sufficiently encouraging to warrant me in testing its usefulness clinically.

5. The enzyme phytase responsible for the cleavage of phytin, though present in plants, appears from the recent work of Plimmer to be absent in animals; he suggests it is therefore probable that if cleavage occurs in animals it is due to phytase contained in the food taken.

6. The foregoing paper also discusses such questions as the comparative therapeutic value of inorganic and organic compounds of phosphorus, and the possible way in which minute quantities of certain constituents of the diet may influence nutrition.

Harrogate.

A CASE OF ANGINA ABDOMINIS.

BY SIR LAUDER BRUNTON, BART., M.D. EDIN., F.R.C.P. LOND., F.R.S., &C.,
CONSULTING PHYSICIAN TO ST. BARTHOLOMEW'S HOSPITAL;
AND
WILLIAM EDWIN WILLIAMS, M.R.C.S. ENG., F.R.C.S. EDIN.

THE case we are about to describe is one in which the patient suffered from severe pain which came on when he began to walk. In this respect the pain resembled that of angina pectoris, but it differed in its position as it was most severe in the umbilical region. It was at first confined to the umbilical region and was attributed to flatulence, but it gradually increased in severity and extent so that it spread all over the front and back of the chest and caused perspiration to break out over his body. The patient, with whose permission we publish the case, was under the care of one of us, Mr. Williams (of Abergavenny), who thus describes it.

The patient was aged 68, a widower, with one child. He had been suffering from glycosuria for 25 years. For the last six years he had been under the care of the late Dr. Pavy. When he first consulted Dr. Pavy six years ago his urine contained 4 per cent. of sugar, together with acetone and diacetic acid, but after taking Dr. Pavy's medicine and living upon a diet restricted to proteid food the urine lost all evidence of sugar, acetone, and diacetic acid—when Dr. Pavy ordered him to take 2 ounces of bread daily. After a while this caused the reappearance of sugar, upon which Dr. Pavy cut off the bread and ordered him to exclude the further use of sugar and starchy food, since when he has adhered to the rigid diet and has taken the pills twice daily. The following is a copy, as far as I remember, of Dr. Pavy's prescription given to him on the first occasion of the patient's visit to him: "℞. Codeinæ gr. ¼, extract. nucis vom. gr. ¾, extract. cascaræ sagradæ gr. ½, to be made into one pill; send 12; take one twice daily shortly after breakfast and at bedtime. Let successive sets of 12 pills follow with gr. ½, gr. ¾, and gr. 1 of codeine, the pills with the last-named dose to be afterwards continued—the dose of cascara to be raised if necessary for the bowels—which was done without producing any alteration in the constipation. The patient still continues taking two 1-grain doses of codeine pills every night and morning, and with the exception of a plate of porridge with 6 ounces of milk daily his diet consists of cream, Callard's prolacto biscuits, butter, cheese, fish, chicken, game, beef and mutton, with sugarless marmalade. The patient's obstinate constipation is still unrelieved except by the continuous use of aperients or enemata. Carlsbad salts require to be taken in increasingly large doses in order to produce a result. In May, 1911, he went to Vichy, where he put on 5 lb. in weight, and after his return home he gained a further 3 lb. within two months. About the early part of August the flatulent pains which had been troubling him to a bearable extent during the previous 18 months became unendurable, and since the appearance of these pains he lost all the flesh he had gained since May. One marked feature in his case has been excessive drowsiness. This tendency to fall asleep has existed for two years. Whenever he gets into a condition for repose at home for reading, after a while he is found to be fast asleep."

He was sent up by Mr. Williams to Sir Lauder Brunton for consultation, who saw him on Oct. 20th, 1911, and found the tongue clean, rather dry, the appetite fair; there was a little distension, and much flatulence which passed both up and down. There was no nausea. The bowels were very constipated and the motions were pale yellow. The urine was rather dark, clear, acid; specific gravity between 1028 in the evening and 1024 in the morning. There was no albumin. There was slight reduction with Fehling's solution, but this was due to normal reducing bodies and creatinin, a mere trace of glucose being present, as proved by the fermentation test. The lungs were quite normal. The heart was in the fifth space, the deep dulness was a quarter inch inside the nipple line, and there was no murmur either at the apex or base. The pulse was 112, regular, but it was, no doubt, quickened by nervousness. The systolic tension was only 115 millimetres of mercury and the diastolic 65. Some bismuth and soda were prescribed for the flatulence and some Carlsbad salts to be taken every morning to keep the bowels open.

As the patient had been losing weight both Sir Lauder Brunton and Mr. Williams thought it would be advisable for him to take more carbohydrates, and consequently asked him to try oatmeal and also some petroleum emulsion. On Nov. 25th another specimen of his urine had a specific gravity of 1013. The reducing power of this urine before fermentation was 3·33 parts per 1000. Of this only 1·55 was due to glucose equal to 0·68 gr. per ounce, but 1·78 parts were due to the other reducing bodies, creatinin, &c. The most striking feature in the case was the severe spasmodic pain of which the patient complained. As this pain resembled so closely that of angina pectoris, but occurred in the abdomen, it seemed to Sir Lauder Brunton that it might well be termed angina abdominis, and that treatment similar to that of angina pectoris might be useful. He accordingly prescribed trinitrine with the most satisfactory results as it cut short the abdominal pain in the same way as it would have cut short anginal pain in the chest.

On Dec. 2nd, 1911, the patient expressed very great satisfaction in having a remedy (trinitrine tablets) to control the pains of angina abdominis. These occurred about twice daily, mostly after walking exercise, but playing billiards brought them on. His sister, aged 64, unmarried, has suffered during the past seven years from abdominal pains similar in every respect to the pains felt by the brother. They are felt in the same spot and come on after walking, and are immediately stopped by taking half a tablet of trinitrine.

When Sir Lauder Brunton saw the case he was unaware that the term "angina abdominis" had already been used some years ago. On looking up the literature he found that Baccelli is said by Minella[1] to have first used this term in his clinic at Rome. Minella himself described a case in 1902, and in his paper says "that the abdominal spasmodic pain may be due to aneurysm or arterio-sclerosis of the vessels of the cœliac plexus." The subject is very fully discussed under the name of "Angina Abdominis" by Professor J. Pal in his book on Gefässkrisen[2] as well as in several other papers.[3] It is also discussed by Huchard under the name of "angina pectoris pseudo-gastrique."[4]

It is now many years since the late Professor Dreschfeld, of Manchester, in a conversation on the subject of abdominal pain, mentioned a case in which he had noticed severe

[1] Minella: Uno Caso di Angina Abdominis, Gazzetta degli Ospedali e delle Cliniche. 1902, No. 120. Abstract in Centralblatt für Innere Medizin, 1903, p. 210.
[2] Professor J. Pal: Gefässkrisen, Leipzig, S. Hirzel, 1905.
[3] Pal: Wiener Medizinische Wochenschrift, 1904, p. 574.
[4] Huchard: Maladies du Cœur et de l'Aorte, Paris, Octave Doin 1899, vol. ii., p. 19.

paroxysmal abdominal pain. After the death of the patient nothing abnormal was found to explain this symptom excepting a very atheromatous condition of the intestinal vessels. Sir Lauder Brunton mentioned this observation in a paper about 12 years ago,[5] but cannot find that Professor Dreschfeld himself published anything on the subject either before or since.

In this paper Sir Lauder Brunton described a condition of pain coming on in the abdomen, spasmodic in its nature and occurring for a limited period. In such cases "the bowels may be perfectly regular, the digestion good in every respect, the health of the individual may appear to be perfect, and yet he suffers frequently from this abdominal pain." These pains he (Sir Lauder Brunton) attributed to spasmodic irregular contraction of the intestinal vessels such as he has had occasion to observe in migraine. He has had opportunities of studying the vascular phenomena in migraine only too frequently in his own head, and he finds that the pain in migraine is invariably due to proximal dilatation and peripheral contraction of the temporal artery.[6] That the pain in migraine is due to the tension in the contracted artery is shown by the fact that it ceases at once when the carotid is compressed, but returns at once when the circulation is re-established. In this paper he advised the use of salicylate of soda and bromide of potassium as a remedy for the abdominal pain just as in migraine,[7] along with carminatives and friction of the abdomen during the attack. In Pal's case of angina abdominis there was high blood pressure, and in some of them angina pectoris occurred at the same time or might occur alternately with the angina abdominis. Many of Pal's cases suffered from tabes, and he considers that in this disease there are two sorts of crises.[8] The first is purely gastric, and in it vomiting occurs either with or without pain, but the blood pressure does not rise much. The second sort consists of vascular crises which are associated with pain and with high tension. In such cases the pain comes on as the pressure rises and is relieved by lowering the pressure by nitrite of amyl or nitrites, just as in angina pectoris or as in the case we have described. This observation has been confirmed by Heitz and Norero.[9] The most distinguishing feature in the present case is the occurrence of pain on exertion, which is so characteristic of angina pectoris, and this peculiarity does not appear to be noted in the cases described by Pal and others.

As most of the cases recorded by others have shown symptoms of locomotor ataxy, it seemed advisable to ascertain the condition of the knee-jerks and of the pupils in the patient and his sister. This was done by Mr. Williams, who finds "the knee-jerks of the patient's sister are normal, but the pupillary reflexes are sluggish, with pupils much contracted beyond what they ought to be." "The patient's knee-jerks," he says, "are abnormally active, the pupils in his case area good deal contracted, and almost insensible to a bright light."

[5] Lauder Brunton: On Abdominal Pain, International Clinics, 8th Series, vol. iii., p. 111; London, T. Lewin and Co., 1899; reprinted in Disorders of Assimilation, London, Macmillan and Co., 1901, p. 250 et seq.

[6] Lauder Brunton: Pathology and Treatment of Headache, St. Bartholomew's Hospital Reports, vol. xix.; reprinted in Disorders of Digestion, London, Macmillan and Co., 1886, p 103; and "On Hallucinations," &c., Journal of Mental Science, April, 1902.

[7] Lauder Brunton: Practitioner, February, 1894; reprinted in Disorders of Assimilation, p. 320.

[8] Pal: Zur Kenntniss der Abdominellen Gefässkrisen der Tabetiker und ihrer Beziehung zur "Aortite Abdominale," Medizinische Klinik, 1908, p. 1790, and numerous papers for which he gives references in his book on Gefässkrisen.

[9] Heitz et Norero de la Pression Artérielle chez les Tabétiques, Archives des Maladies du Cœur, 1908, p. 519.

THE LEICESTER INFIRMARY.—At the 139th anniversary meeting of the Leicester Infirmary, held under the chairmanship of Mr. Thomas Cope, J.P., on March 20th, a resolution was passed regretting the resignation of Dr. F. M. Pope as senior physician on the completion of 26 years' honorary service, and recording the gratitude of the governors and subscribers for his eminent services. Dr. Pope was appointed consulting physician to the institution.

ACUTE POLIOMYELITIS AND ALLIED CONDITIONS.[1]

BY E. FARQUHAR BUZZARD, M.D. OXON., F.R.C.P. LOND.,

OUT-PATIENT PHYSICIAN TO THE NATIONAL HOSPITAL FOR THE PARALYSED AND EPILEPTIC, AND TO ST. THOMAS'S HOSPITAL; CONSULTING NEUROLOGIST TO THE ROYAL FREE HOSPITAL, AND TO THE HOSPITAL FOR DISEASES OF THE THROAT, GOLDEN-SQUARE, W.

FOR a long time I have been convinced that while most medical men are acquainted with certain aspects of this disease, especially with its permanent results, few have a clear conception of what the disease really is, or what place it should occupy in the classification of diseases generally. The name of a disease should at once conjure up an accurate mental picture of the morbid process underlying it. The name "acute poliomyelitis" has a way of recalling to mind the picture of some poor cripple with an instrument on his shrunken and deformed leg. This is not as it should be. The word "chicken-pox" does not make us think of someone with an old pock on his face, but of a child more or less ill displaying a typical eruption in full bloom. The word "scarlatina" does not remind us at once of someone suffering from chronic nephritis nor of some deaf patient, but of a case of severe and acute illness requiring serious care and isolation. The cripple, the pock-marked individual, the renal case, and the deaf patient are all in the same category. In other words, they are all illustrations of the accidental results of an acute specific fever.

The mention of acute specific fever has brought me to my first point. For some years I have constantly taught that acute poliomyelitis is one of the acute specific fevers, and I do not hesitate to say that in medical text-books of the future it must be removed from the section of nervous diseases and must take its proper place with measles, scarlatina, chicken-pox, small-pox, enteric fever, &c. Lobar pneumonia has already been transferred from the section of respiratory diseases, although its resemblances to the other acute specific fevers are slight indeed as compared with those of acute poliomyelitis.

I may be asked, What good would such a change in classification effect? In my opinion it would be of the greatest possible service in an indirect way. At the present time I do not believe that one case of poliomyelitis in fifty is diagnosed correctly within a few days of its onset. I will go further, and say that the idea of such a possibility does not enter the medical attendant's mind. He is asked to see a child who has some rise of temperature, is seedy, perhaps complains of headache, may vomit, may even have a slight convulsion. He examines the child all over, looks for rashes, inspects the throat, and finding nothing says that it may develop into something, perhaps measles or chicken-pox, or hints that it may only be influenza. The idea of acute poliomyelitis never enters his head, and why? Simply because acute poliomyelitis is not among the acute specific fevers in his text-book, but is found in that most shunned of all sections, the section on diseases of the nervous system.

Some will ask, What good would result from recognising the disease earlier? My reply is twofold. In the first place, we should strive at correct diagnosis as early as possible, whether good results or not. In the second place, the advance in our knowledge of this particular disease has been so great and so striking within recent years that we may at any time be in possession of means by which to thwart its progress. Such means will be useless unless we have learned to recognise its earliest manifestations.

Let me now recount my reasons for placing poliomyelitis with the other acute specific fevers.

1. *Age incidence*.—This resembles that of several specific fevers. The large majority of cases occur in the first five years of life, after which the liability gradually diminishes. Instances of the disease after 40 are quite rare although they occur in severe epidemics.

2. *Seasonal exacerbations*.—The disease is most common in the months from July to October, but it is not extinct at any time of year.

3. *Endemic and epidemic manifestations*.—While cases are

[1] The opening paper at the discussion held on Feb. 29th, 1912, at the Harveian Society of London.

fairly common from year to year and widely distributed all over the world, epidemics have been recognised with increasing frequency in many countries as well as in the British Isles.

Although the occurrence of epidemics has excited renewed interest in the lay and medical mind it is a mistake to suppose that there is any essential or material difference between the endemic and epidemic cases. It is true that while an epidemic is prevalent many cases are recognised which would otherwise escape notice; yet the endemic cases vary considerably, and may present all the features which are supposed in some quarters to be peculiar to the epidemic types. I refer not only to the slight abortive cases of which we have heard a good deal lately, but also to the fact that in all probability many endemic cases in infants are rapidly fatal and are diagnosed as cases of tubercular meningitis or teething convulsions, &c. There are no reliable grounds on which to base the statement that the mortality rate is greater among the epidemic than the endemic cases.

4. *Immunity from second attacks.*—There can be no doubt that a second attack of poliomyelitis is extremely rare, and its occasional occurrence finds its counterpart in the other specific fevers.

5. *The virus.*—The obscurity surrounding the nature of the virus is shared by many of the specific fevers, notably variola, varicella, and measles. Recently, however, the specificity of the disease has been abundantly proved by the experimental work of Levaditi, Flexner, and other observers.

6. *The onset and course of poliomyelitis* simulate those of other fevers in many ways. Healthy children are suddenly attacked with a febrile illness associated with headache, anorexia, vomiting, perhaps convulsions, and this condition runs a rapid course of a few days. The disease is soon over, the temperature drops, and if the patient survives there are only the effects of the morbid process left. I am well aware that in a few cases the constitutional disturbance is either absent or so slight as to be easily overlooked, but we are all familiar with the same absence of fever, &c., in cases of chicken-pox, whooping-cough, &c.

7. *Contagion.*—That the disease is contagious is now hardly open to doubt, but the actual path of contagion and the factors influencing it have still to be discovered.

It will be agreed that poliomyelitis has a strong family likeness to the acute specific fevers of childhood, but it differs from most in one important particular. The inflammatory eruption—the rash, in fact—is not visible on the surface, but lies deep in the central nervous system. Its presence can only be assumed during life by the secondary changes it produces in the function and structure of the skeletal muscles—that is to say, in the muscular paralysis and atrophy.

The post-mortem study of recent cases, however, has shown that the spinal rash of poliomyelitis resembles strongly the cutaneous rash of at least one other specific fever—namely, small-pox. It is an acute inflammation rapidly subsiding in a few days; it may be discrete or confluent; resolution may be complete in some parts and incomplete in others, but in the large majority of cases one or more scars remain of which permanent evidence is afforded by blemishes on the surface of the body.

I shall return to the pathological features of the disease presently. Meanwhile let me draw attention to some of the clinical phenomena of the acute stage in order to emphasise the points on which the diagnosis must be based. Let me say at once that I do not wish to minimise the difficulties of diagnosis, especially in the case of infants and young children. In these small patients the disease is ushered in by constitutional disturbances such as fever, anorexia, fretfulness, restlessness, perhaps vomiting, sometimes catarrh, and occasionally convulsions. Within a few hours there may be evidence of muscular weakness, which is only detected by close observation. The limbs are not moved readily and briskly, either spontaneously or in response to stimulation, although there may be as yet no complete paralysis. This is the stage when the true condition is most often overlooked, although one must confess that paralysis is sometimes unsuspected until all the acute symptoms have passed off, and the truth revealed only when the child is removed from bed and one or more limbs are found to hang lifeless from the trunk.

In a large number of cases an aid to diagnosis may be afforded at this stage if attention is paid to this point. The child evidently dislikes being handled and moved about. It cries, but the resistance it offers to our manipulations are unnaturally feeble. We are familiar with the lusty struggles of a child who resents examination even when considerable fever and illness are present. Feeble struggles, therefore, should arouse suspicion of paresis.

There is an idea quite prevalent in the profession that pain is not a feature of acute poliomyelitis, or that it is a monopoly of the epidemic cases. This is certainly not the case. A large proportion of the endemic cases show evidence of pain on passive movements, and older children and adults often complain of intense suffering when their limbs are moved or handled.

In my experience pain always follows paresis, although the interval between the onset of the two symptoms is often a matter of only a few hours. Moreover, I believe that pain is more severe, and certainly more persistent, in muscles which are partially, than in those which are completely, paralysed. In some cases it may last for weeks and even months after the acute stage has passed off. This persistent form of pain is rather difficult to explain, but it appears to be due to local changes in the partially atrophic muscles and to be excited by any measures which tend to put the fibres on the stretch.

Let me revert to the early symptoms. Attention should be paid to the muscles of the trunk as well as those of the limbs, and particularly to the respiratory muscles, which are not uncommonly weak or paralysed at this stage. Impairment of sensibility is so rare that we need not refer to it except in so far as its absence helps to exclude certain other forms of paralysis.

The tendon reflexes are important, because they are frequently lost in connexion with muscles which are not completely paralysed. On the other hand, it is quite possible for a child to retain its knee-jerks, and yet suffer from acute poliomyelitis, if the stress of the disease is not upon the lumbar region of the cord. In some cases the knee-jerks are present and the ankle-jerks lost. In one case I saw some years ago the knee-jerks were lost, and yet ankle clonus was obtained on one side.

The plantar reflexes are not of great importance in diagnosis. They may be absent when the muscles below the knee are paralysed, or they may be either flexor or extensor in type when the toe movements are preserved.

Head retraction is sufficiently common in the acute stage of poliomyelitis to render it of little value as a point of distinction between this disease and various forms of meningitis. If this question arises, recourse to a lumbar puncture may be necessary, and the point settled by a careful examination of the cerebro-spinal fluid.

Kernig's sign appears to be much beloved by some observers if one can judge by the frequency of reference to it in reports of epidemics. Take my advice and have nothing to do with it. Clinical medicine would be none the poorer if this so-called sign had never been born or christened, and I am inclined to think that attempts to elicit it and the hope of being guided by it are responsible for more errors than successes in diagnosis. Resistance to passive movement cannot be standardised. It varies with age, individuality, and a number of other factors to any extent, and if this resistance is of any clinical value the latter can only be estimated by those medical men who make a constant habit of handling limbs and of learning by practice when a limb offers more or less resistance than the normal. Personally I never test for Kernig's sign. I always try to ascertain what degree of passive resistance to passive movement is present, to determine on what it depends, and, finally, to compare it with that which previous experience under similar circumstances teaches me to expect.

One word about the sphincters. Retention of urine and constipation are common enough in the acute stage, especially if the abdominal muscles are paralysed. A return to incontinence is often observed in infants who are just learning habits of cleanliness. These are temporary lapses, however, and the sphincters are never affected for long.

An electric battery is of no use for the early diagnosis of poliomyelitis, because the muscular reactions are not altered for some days after paralysis has set in. Later these reactions are helpful, especially in relation to the question of prognosis.

Having referred briefly to important features of the acute stage, let me add a few words with regard to the variations

in its course. In the first place it is almost characteristic of this disease that the initial paralysis is more widespread than that which remains at the end of a week. It is not always the case that every part of the body is attacked at the same moment, but after the paralysis has reached its climax it is the rule to find some parts clearing up rapidly, while others remain affected. Moreover, there is rarely any symmetry in the march of recovery. Both legs may be equally and completely paralysed for a few days, but a week later one may have recovered. In another case both limbs remain partially affected, but the muscles paralysed in one are different from those in the other.

The mortality of the disease is impossible to estimate. In all probability many infants die from it without the proper diagnosis being made. I am led to this belief by two facts. In the first place, a general paralysis in an infant who is seriously ill is often overlooked. In the second place, I have known an adult die from the disease within 36 hours of the onset of symptoms. Although the paralysis was recognised the case was regarded as one of Landry's paralysis. This mistake has been made over and over again, and examples of it are scattered through medical literature. As I have already stated, cases are recognised more readily during epidemics, and for this reason the mortality of these epidemics is regarded as high. It is quite possible that the mortality rate among endemic cases is equally serious.

Is complete recovery possible? The answer to this question is undoubtedly in the affirmative, if we take the experience of epidemics. The inference is that unrecognised endemic cases may also make perfect recoveries, and I have had experience of at least one case which encourages me in this belief.

Allied conditions.—What *are* the allied conditions? If my contention that poliomyelitis is an acute specific fever is correct, the most closely allied conditions are the other acute specific fevers. It is certainly a fact that in the earliest stage of the disease there is often difficulty in deciding to which of these forms the case belongs. But there is another very closely allied condition—namely, encephalitis. Ample evidence is forthcoming to show, not only that encephalitis occurs alongside poliomyelitis in epidemics, but that the two conditions may be associated in the same patient even in endemic cases. They are not only closely allied, but they are pathologically and etiologically identical.

Encephalitis among infants must be a fairly common, if often unrecognised, event. Probably the majority of cases of infantile hemiplegia have this origin, and I strongly suspect that many cases of epilepsy, even when unassociated with hemiplegia, are due to the same primary cause. Let me remind you of a very common clinical history in cases of epilepsy. An infant in the first or second year of life has a series of convulsions, lies desperately ill for a few days, and then recovers. Perhaps six months or a year later an epileptic fit occurs, and these are repeated with decreasing intervals. The case is regarded as one of epilepsy starting with "teething convulsions." Many such cases, I believe, are instances of acute encephalitis leaving scars in the brain which subsequently form the starting points of epileptic attacks. The same history obtains in some cases of mental deficiency.

Encephalitis of the brain stem may have other results. It may give rise to cranial nerve palsies, some of which recover, and others of which remain as permanent blemishes. It is not unlikely that such is the origin of some cases of strabismus which follow an obscure illness in infancy.

There are other diseases common in the first few years of childhood which are not allied to poliomyelitis but which may give rise to errors in diagnosis. These are acute rheumatism, rickets, scurvy rickets, and inflammations of the joints and bones. I do not propose to dwell upon the differential diagnosis of these conditions as I do not believe that the difficulties are serious if the possibility of acute poliomyelitis is borne in mind, and I have already emphasised the characteristics of this disease.

In adults the problem of diagnosis is entirely different. Paralysis is much more readily recognised, and there are other diseases which are capable of bringing about a rapid and general loss of power. I refer to diseases which are uncommon, if not unknown, in early childhood—namely, Landry's paralysis, acute polyneuritis, and acute ascending myelitis. The last of these does not present much difficulty, since the motor palsy is accompanied by profound sensory loss and paralysis of the sphincters. Landry's paralysis, on the other hand, often simulates acute poliomyelitis very closely, and the diagnosis must depend on certain minor differences between the symptomatology of the two diseases. The constitutional disturbances in Landry's paralysis are usually less marked than those in severe and general acute poliomyelitis. Paræsthesiæ are common, and pain and tenderness are uncommon in Landry's paralysis. In Landry's paralysis, too, the paralysis is symmetrical in its onset and its spread, so that the escape of a muscle or a group of muscles here or there, so often seen in acute poliomyelitis, is never observed.

Acute toxic polyneuritis is characterised by slight constitutional disturbances, and by the fact that the paralysis is symmetrical in distribution and tends to affect the peripheral more severely than the proximal parts of the limbs. Some cases present no definite sensory loss, although tenderness of muscles on deep pressure is usually present.

The importance of making a correct diagnosis is chiefly in relation to the prognosis, which is more serious with regard to life in Landry's paralysis than in the two other diseases. On the other hand, the outlook with regard to recovery of power in patients who survive is much less hopeful in acute poliomyelitis than in Landry's paralysis or in toxic polyneuritis.

Before concluding, I should like to draw attention to some lantern slides illustrating the chief anatomical features of acute poliomyelitis. They will serve to emphasize some of the points I have already alluded to and to explain the clinical characteristics of this disease. In the first place, it will be observed that the morbid process has all the appearances of an acute inflammation, not only affecting the anterior grey matter, but also the posterior horns, and to a less extent the white columns and the meninges. The evidence of inflammation is afforded by the swelling of the tissues due to serous exudation, by the extensive proliferation of cells in the adventitial sheaths of the blood-vessels, in the meninges and in the grey matter, and by the general dilatation of the vascular channels. In the second place, the slides illustrate the way in which some of the anterior horn cells are rapidly destroyed by the inflammatory process, others are only slightly and temporarily affected, and others escape altogether. The appearances suggest to my mind that the virus does not exert any special toxic influence on the ganglion cells, but that the latter are secondarily and accidentally, as it were, affected by the changes in the local circulation brought about by the acute inflammatory process. In the third place my preparations show, and other observers are agreed on the point, that the inflammation is of very much wider and more general distribution than the clinical symptoms of the case would lead one to expect. In many cases, for instance, the morbid process can be traced into the medulla, pons, and cerebral hemispheres when the symptoms have not pointed to disease beyond the spinal cord. Definite localising symptoms result only when the process has reached a certain depth of intensity on any particular spot.

It will be seen from preparations which I am showing of cases of Landry's paralysis and acute toxic polyneuritis that there is no anatomical resemblance between these conditions and acute poliomyelitis. However striking may be the clinical resemblance between a case of Landry's paralysis and one of poliomyelitis, a glance at a section of the spinal cord is sufficient to demonstrate at once the difference in the morbid process.

Curiously enough, the disease which resembles poliomyelitis most in its histological appearances is rabies, and I am able to demonstrate this point by means of a slide showing the spinal changes in the latter disease. It may be remembered that rabies sometimes takes on the form of an acute ascending paralysis and then clinically resembles some cases of acute poliomyelitis.

Wimpole-street, W.

PRESENTATION TO A MEDICAL MAN.—On March 27th Dr. W. L. Byham, of Sunbury-on-Thames, was presented with a revolving library chair by the members of the Sunbury United Works Branch of the St. John Ambulance Association as a token of esteem and appreciation of his services as honorary lecturer.

CONGENITAL MALPOSITION OF THE GALL-BLADDER.

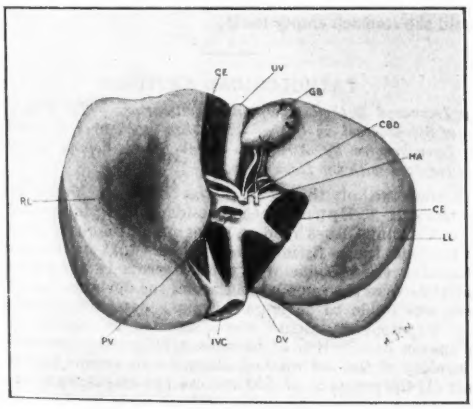
BY ALBERT J. WALTON, M.S. LOND., F.R.C.S. ENG.,
ASSISTANT SURGEON, DREADNOUGHT HOSPITAL, GREENWICH; DEMONSTRATOR OF ANATOMY, LONDON HOSPITAL.

CONGENITAL malpositions and deformities of the gall-bladder are all relatively rare. The majority, however, are of such a nature that their presence is likely to lead to difficulty at operation, and, since diseases necessitating an investigation of the gall-bladder are common, it is important that attention should be directed towards them. One of the rarest of such lesions appears to be the presence of a gall-bladder situated on the under surface of the left lobe of the liver—that is, to the left of the longitudinal fissure and the falciform ligament. It must not be confounded with a gall-bladder displaced to the left owing to atrophy of the left lobe of the liver, such as has been recorded and figured by Rolleston.[5] There, however, it will be seen that the gall-bladder remains to the right of the falciform ligament.

The rarity of this condition is shown by the fact that in the series of cases of gall-stones, 409 in all, occurring in the London Hospital in the ten years 1901–1910 inclusive, which I have previously reviewed,[6] this abnormality was not once present. In the post-mortem examinations at the same hospital in five years 1907–1911 inclusive, 6228 in all, it was also not discovered. Very few cases also have been recorded in the literature. I have only been able to find three. The first is described by Dévé,[1] the second by Hochstetter,[2] whilst Rolleston[5] states that a third is present in the Anatomical Museum at Cambridge.

The present specimen which I wish to report, although not discovered at operation, is none the less of interest in that it lays stress upon the fact that such an abnormality may be present. The specimen was obtained from an anatomical subject, a full-time female fœtus, in the Anatomical School of the London Hospital. The history of the cause of death was naturally difficult to obtain, but as far as could be ascertained this took place in prolonged labour. The factor of importance was, however, that no other deformities were discoverable, and therefore from the point of view of the anatomical structure there was no reason why the child should not have reached adult life.

The accompanying sketch represents the condition seen on the under surface of the liver. The gall-bladder,



Drawing of under surface of liver. CE, Cut edge of liver. UV, Umbilical vein. GB, Gall-bladder. CBD, Common bile duct. HA, Hepatic artery. LL, Left lobe of liver. DV, Ductus venosus. IVC, Inferior vena cava. PV, Portal vein. RL, Right lobe of liver.

as will be seen, is situated on the left lobe, but is normal in shape and attachment. The neck of the bladder is directed towards the right instead of towards the left side, and there is a well-marked Hartmann's pouch just before the origin of the cystic duct. The fundus reaches to, but does not project beyond, the free margin of the liver. The gall-bladder lies well to the left of the umbilical vein, but the area between it and the structure, which presumably should be called the quadrate lobe, is small, so that in life the gall-bladder lay close to the falciform ligament, and was, when viewed from the right side, wholly covered by this structure. If, therefore, symptoms of disease of the gall-bladder or some neighbouring structure had arisen, which necessitated exploration through the usual incision traversing the right rectus, the gall-bladder would, at operation, have been invisible, and even if the liver had been pulled well over to the right it would have remained hidden beneath the falciform ligament, which would have been stretched across it.

A portion of the liver, including part of the right lobe, the Spigelian, and the caudate lobes, has been removed, so that the structures in the hilum are laid bare. The peritoneum and connective tissue surrounding these structures have also been cut away. In front the umbilical vein is seen lying in the horizontal fissure and passing backwards to join the portal vein, whilst behind it is continued as the ductus venosus to join the inferior vena cava in the normal manner. It is interesting to note that before dissection there was no trace of any furrow or sulcus in the normal position of the gall-bladder, such as is so well marked in a specimen of congenital absence of the gall-bladder which is present in the London Hospital Museum. The cystic duct passes downwards to join the hepatic ducts in the normal manner, and all of them show a well-defined lumen. The cystic duct, owing to the removal of the surrounding peritoneum and connective tissue, has lost its natural curves and appears as a nearly straight structure. The common duct is also patent, but lies well to the left of the portal vein instead of in front and to the right, so that in a similar case recognition of this structure at operation might be associated with unusual difficulties. It still, however, lies to the right of the hepatic artery. The common duct joined below with the duct of Wirsung from the pancreas to open in the more usual way through a common ampulla of Vater at the apex of a papilla major of Santorini in the second part of the duodenum. There was nothing unusual to note about the pancreas, it, together with the other abdominal viscera, being of the normal shape and occupying its correct position, there being no situs inversus or dextrocardia. The specimen is preserved in the London Hospital Museum.

The difficulty which would arise at operation with such a condition would be to discover the gall-bladder, and it would be necessary, if the under surface of the right lobe were free from adhesions and visible, to distinguish it from the three following conditions: extreme fibrosis and atrophy of the gall-bladder after inflammation, complete congenital absence of the gall-bladder, and an intrahepatic gall-bladder.

The first of these three, which differs from the rest in being an acquired condition, is much the more common. In most cases the gall-bladder can be discovered and its connexion with the hepatic ducts through an atrophic cystic duct be distinguished. In some extreme cases, however, it is so shrunken as to be no larger than a pea, and full and careful dissection is required before it is made manifest as a gall-bladder.

The second condition, complete absence of the gall-bladder, is also very rare in man. A case has been recorded by Latham,[3] and according to Rolleston[5] a second one was shown by Thursfield at a meeting of the Pathological Society in 1903. Both of these were carefully dissected, so that there was no doubt that the condition was one of complete absence and not extreme fibrosis after inflammation. There is a third specimen in the London Hospital Museum (No. 1396A), where also the condition is clear. In this case there is a deep furrow in the position which the gall-bladder should occupy, so that the quadrate lobe is quite distinct from the rest of the right lobe. In such a case as this disease of the gall-bladder could, of course, not arise, and therefore operation might seem unnecessary and the condition of no surgical importance. It must be remembered, however, that the symptoms of duodenal or gastric ulcer may closely simulate those of gall-stones, so that if either of these two conditions be present it may be necessary to satisfy oneself that the gall-bladder is healthy, and thus complete absence is an abnormality which, even if rare, should be remembered.

An intrahepatic gall-bladder is one which is in part or wholly imbedded in the liver substance. All degrees of the condition may occur, from a small bridge of liver tissue

passing across from the quadrate to the right lobe to complete submersion of the gall-bladder, so that no trace of it is discernible from the outside. The latter condition is the only one which would be confused with a misplaced or absent gall-bladder, but in this degree it is extremely rare. According to Dévé the gall-bladder is only truly intrahepatic in infancy, later on in life the covering of liver tissue atrophies on the under surface and the gall-bladder becomes exposed. There is, however, a case recorded by Lemon [4] where the fundus of the gall-bladder alone projected, in which gall-stones were present. Unfortunately, however, he records neither the age nor the sex of his patient, so that although the presence of gall-stones would suggest that the age were considerably more advanced than that of infancy, such is not certain. The fact remains, however, that a gall-bladder so situated may become the seat of disease and be difficult to satisfactorily deal with at operation.

Bibliography.—1. Dévé: Bulletin de la Société d'Anatomie de Paris, 1903, p. 261. 2. Hochstetter: Archives of Anatomy, 1886. 3. A. Latham: Journal of Anatomy and Physiology, 1898. 4. F. Lemon: THE LANCET, May 13th, 1905, p. 1265. 5. H. D. Rolleston: Diseases of the Liver, Gall-bladder, and Bile-ducts, London, 1904. 6. A. J. Walton: Annals of Surgery, July and August, 1911.

Welbeck-street, W.

Medical Societies.

ROYAL SOCIETY OF MEDICINE.

MEDICAL SECTION.

Angina Abdominis.—Functional Hour-glass Stomach.

A MEETING of this section was held on March 26th, Dr. FREDERICK TAYLOR, the President, being in the chair.

Sir LAUDER BRUNTON, Bart., and Mr. W. EDWIN WILLIAMS communicated a paper on a case of Angina Abdominis, which is published in full on p. 921 in this issue of THE LANCET.—Dr. F. PARKES WEBER said that there was an immense amount of foreign literature on the subject, but very little in English. Amongst the various kinds recorded was one which occurred usually past middle life in conditions of general arterio-sclerosis and high blood pressure. Severe abdominal pain occurred, with a desire for defecation, but only mucus was passed. Then the abdominal crisis disappeared, a termination which was favoured by a hot hip-bath. There was little anatomical basis to establish the cause of the condition as yet.—Dr. F. G. CROOKSHANK said that he had seen a somewhat similar case which had been diagnosed as one of intestinal obstruction, and had improved when the bowels had acted. Later the patient became suddenly worse and died, and post mortem arterio-sclerosis of the cœliac axis and gangrene of the pancreas were found. The case was regarded as resembling intermittent claudication, and he suggested that this would be a better term than angina.—The PRESIDENT asked if this condition could be linked up with other acute paroxysmal pain in the abdomen such as that which sometimes occurred at the beginning of diabetic coma.—Sir LAUDER BRUNTON, in the course of his reply, said that in his case there was no intestinal catarrh, but the pain occurred after exertion. The case was distinguished by this feature.

Dr ARTHUR F. HERTZ read a paper on Functional Hour-glass Stomach. He stated that the X rays had shown that in addition to the well-recognised organic hour-glass stomach three functional forms exist. 1. Spasmodic hour-glass stomach is the result of a spasm in the centre of the stomach, which is generally secondary to an ulcer situated on the lesser curvature. The spasm can sometimes be caused to disappear by abdominal massage, contraction of the abdominal muscles, and by the injection of atropine. It does not prevent a rapid filling of the distal segment of the stomach and never leads to peristalsis in an approximal segment. 2. Orthostatic hour-glass stomach results from the combination of atony and ptosis. The food falls into the most dependent part of the organ, which sags deeper and deeper as the quantity taken increases. The tension exerted upon the body of the stomach results in the passage between the fundus and the most dependent part of the organ becoming narrower and narrower until its lumen is completely obliterated and the stomach is divided into two segments, each of which contains food and gas. This hour-glass condition disappears immediately if the patient lies down. 3. The third form of functional hour-glass stomach results from the presence of ulcer on the lesser curvature adherent to the left lobe of the liver. When the patient stands a line of tension is produced diagonally across the stomach; the greater curvature is held up at the point where this line meets it, the part of the stomach immediately above sagging down, an appearance of hour-glass stomach being produced, which disappears on lying down. In the spasmodic and orthostatic forms the neck of the hour-glass stomach proceeds from the most dependent point of the upper segment, but this third form of functional hour-glass stomach resembles the organic condition in that a part of the upper segment sags below the neck.—Dr. LANGDON BROWN said he had seen an example of the condition as caused by the lesser curvature of the stomach being held up by adhesions to the liver. He showed skiagrams of another case in which symptoms suggestive of appendicitis were present, and the skiagram showed clearly the appearances of an hour-glass stomach. The symptoms and test meal did not favour the diagnosis of gastric ulcer, and no occult blood appeared in the stools. Mr. Gordon Watson had explored and a definite constriction was seen in the middle of the stomach, but this passed off under deeper anæsthesia. The appendix was found to be swollen, curled up, and adherent at its tip. He could not absolutely exclude a gastric ulcer, but suggested that the spasmodic condition of the stomach was produced reflexly by the appendicitis.—Sir JOHN BROADBENT asked if Dr. Hertz considered that the bulk of elongated stomachs associated with splashing was due to functional hour-glass contraction. What line of treatment would he advocate?—The PRESIDENT asked Dr. Hertz what he would suggest should be done for the cases of the first variety.—Dr. HERTZ, in reply, said that he did not think that spasmodic hour-glass contraction was necessarily due to gastric ulcer, but probably other causes could produce it, such as appendicitis or gall-stones. It was possible to distinguish between organic and spasmodic stricture by getting the patient to contract the abdominal muscles, by massage, and in obstinate cases by atropine. These measures caused a spasmodic hour-glass constriction to disappear. He thought that the orthostatic form was common in people with loose abdominal walls. It occurred in conditions of atony and if any cause existed which led to weakness of the abdominal wall, but the latter element was not essential. With regard to treatment, he should advise against operation in the spasmodic form until medicinal measures had had an extended trial. No drug was so useful as belladonna. The orthostatic variety was best treated by rest in bed and feeding up, as only in this position could the stomach empty itself.

PATHOLOGICAL SECTION.

An Improved Method of Opsonic Estimations.—The Incidence of Streptococci in Urine.—The Mitotic Figures Induced in Lymphocytes by Auxetics.—The Blood Volume of Dogs Infected with the Hook worm.

A MEETING of this section was held on March 19th, Professor R. T. HEWLETT, the President, being in the chair.

Dr. CHARLES RUSS read a paper on an Improved Method for Opsonic Index Estimations. He said that by repeatedly estimating the opsonin of a normal serum in which all the materials were the same he had found the deviation from the mean was liable to be large. From general considerations this "content variation" was presumed to depend upon an uneven distribution of bacteria amongst the leucocytes. A scrutiny of the *old* method showed two serious defects—viz.: (1) the presence of 500 useless red corpuscles to every leucocyte, hindering the access of bacteria to leucocytes and their even mixture; and (2) the permission of sedimentation of the opsonic mixture during incubation, producing the same effect. To remove the first defect the leucocytes were separated in bulk from the red corpuscles in human blood (by an extension of Dr. Ponder's work on leucocytes), and used for the improved process. For the second defect the opsonic mixture was kept in rotary motion during incubation by a suitable mechanism. When repeated tests were made with the same materials by the improved method there was a largely reduced liability to error. This affected both the average and maximum deviation from the mean value. The observed errors by the improved method were one-quarter

the magnitude of those by the old process, the conditions of experiment being almost completely comparable.

Dr. H. WARREN CROWE read a paper on the Incidence of Streptococci in Urine. He stated that a systematic examination for the presence of streptococci in urine had been undertaken, with a view to determine the value of this field for purposes of further research. He had observed that these organisms were found frequently in patients suffering from chronic rheumatism, especially in conjunction with digestive disorders, headache, cardiac neurosis, and general lassitude. Autogenous streptococcus vaccines were found to be remarkably beneficial in these cases. About 60 urines of normal people were investigated. From eight of these streptococci were isolated. The remainder were hospital patients. Difficulty was experienced in obtaining uncontaminated specimens, but a series of 53 men were judged to be reliable. Amongst these streptococci were isolated in over 20 cases. Those chiefly affected were patients with slight ailments, gastric disorders, morbus cordis, and epilepsy. In acute rheumatism and nephritis streptococci were rarely found. Four distinct species were described. Neutral red egg medium provided a ready means of isolating and distinguishing these varieties. One was taken to be a urethral contamination, and probably corresponded with the strepto-bacillus urethræ of Pfeiffer. One was found only in two cases. Probably the other two were potentially pathogenic. Tables showing the incidence and comparative morphology and reactions were shown, and illustrative cultures and slides were exhibited.

Mr. H. C. ROSS read a paper on a Comparison between the Division Figures induced in Lymphocytes by Auxetics with the Jelly Method and the Mitotic Figures seen in these and other Cells in Sections of Tissues by the Older Methods. Attention was drawn to the fact that up to the present cells had only been "caught" in the act of mitosis, and that the progress of the several stages had merely been deduced from the pictures presented by the killed cells in the fixed films. By means of the jelly method, however, with the agency of auxetics, living cells could more easily be seen going through the whole process of division step by step. The difficulty of convincing people of these division figures rested on the question of being able to obtain permanent records of the experiments, which had proved to be an obstacle. The living cells did not last long, and therefore many persons could not see them at a demonstration, and photography, although many negatives had been taken, had not proved very satisfactory. A method of fixing the jelly films had provided some permanent specimens of dividing lymphocytes, although most of them were distorted. These fixed films were shown and described in detail, and in the paper they were compared with well-known figures of mitosis, showing how they were in some respects similar to mitotic figures. In addition to this, a series of diagrams were exhibited of the division figures induced in lymphocytes, drawn from memory of the living cells on the jelly films. Lastly, the point was mentioned that so far these division figures could only be induced by auxetics, and that such substances as saponine, oleic acid, &c., which affect surface tension, did not have any action in inducing cell-division in lymphocytes.

Dr. W. NICOLL read a paper on the Blood Volume of Dogs infected with the Hook-worm (Ankylostoma Caninum). He pointed out that the conditions of affairs in the experiments which he had undertaken were not analogous to the disease produced by hook-worms in man. A complete estimation was made of the volume in three normal dogs and it was found that about 91 per cent. of the total volume could be washed out of the blood-vessels. In three normal cats it was found that about 95·5 per cent. of the volume could be washed out. The variation did not exceed 5 per cent, In the experiments the volume of blood washed out was taken as 91 per cent. He had not been successful in his attempts to induce a state of severe chronic anæmia. In the younger animals heavy or even moderate infection caused acute anæmia, with rapid loss of weight, resulting in death in about a fortnight, and slighter, repeated infection caused a distinct anæmia, which was gradually compensated for even although the infection was continued, and the dog regained its normal condition. In the case of older dogs death never resulted, but only a slight anæmia was produced. It was found possible to infect dogs of all ages up to 18 months, but the number of worms which established themselves in the intestine varied inversely as the age of the dog. In the uninfected dogs the volume of blood was found to vary from 1/9th to 1/12th of the body weight. In most of the infected dogs the volume was 1/16th to 1/13th. It was thus evident that if any change had taken place it was in the direction of a diminution. In most of the dogs a considerable amount of blood was found throughout the intestine post mortem even six months after the original infection. Other points of interest were the absence of marked eosinophilia and the presence of a large number of erythroblasts. The conclusions drawn were that in the experiments the anæmia was of secondary character and that there was a decrease rather than an increase in blood volume.

SECTION FOR THE STUDY OF DISEASE IN CHILDREN.

Exhibition of Cases.—Congenital Dyschezia.

A MEETING of this section was held on March 22nd, Dr. G. A. SUTHERLAND, the President, being in the chair.

The following cases were shown:—

Dr. J. L. BUNCH: Leucoderma and Premature Canities in a girl aged 14 years. When 10 years old the patient developed some round or oval white patches on her chest and shoulders, and these extended and increased in number, spreading also to the neck and limbs. The patches had not been preceded by any hyper-pigmentation. She was otherwise healthy. In addition to the pigmented patches there was over the right frontal region a considerable quantity of quite white hair, the depigmentation extending right down to the roots, and this white hair contrasted sharply with the rest of the child's yellowish hair. The scalp over this area did not appear to differ, either to sight or touch, in any way from the other parts of the scalp. It was mentioned that, although at this age such cases were nearly always progressive, the leucodermic areas in this child had become less marked and diminished in size and the white hair had already acquired a considerable amount of pigment.

Dr. J. PORTER PARKINSON and Mr. DOUGLAS DREW: Purulent Pericarditis. A boy, aged 4½ years, had an attack of pneumonia involving the bases of both lungs in October, 1911. The urine contained blood, pus, albumin, and epithelial and blood casts with many pneumococci. The pneumonia ran an ordinary course, but the pulse-rate remained the same and the heart sounds became muffled, but there was no friction. Later the cardiac dulness increased, and finally extended up to the first rib. Some swelling of the face and œdema over the præcordium appeared. Mr. Drew excised 2 inches of the fifth rib cartilage and evacuated 10 ounces of pus which contained pneumococci in pure culture. Recovery was uneventful and the urine became normal. There were at the present time no signs of enlargement of the heart either clinically or by the X rays, and the boy shows no sign of cardiac embarrassment. The heart moved to and fro when the patient was placed on one or other side.

Dr. LEONARD G. GUTHRIE: Chronic Jaundice and Splenomegaly in a girl 6 years of age. Eighteen months ago the child became jaundiced. The icterus varied in intensity from time to time, but never entirely disappeared. On admission to the hospital in December, 1911, the skin and mucous membranes and conjunctivæ were of bright canary-yellow colour. Bowels constipated; motions dark. Urine pale; no bile pigment. Spleen easily palpable 2 inches below the costal margin. Blood examination: serum deep yellow coloured; red cells, 4,190,000; white cells, 10,200; hæmoglobin, 80 per cent. Differential count: polymorphonuclears, 76 per cent.; large lymphocytes, 4·5 per cent.; small lymphocytes, 17 per cent.; eosinophiles, 2·5 per cent. During three months' observation the icterus had varied greatly in intensity but had never disappeared. The motions were always dark, and the urine had never contained any bile pigment. The spleen remained enlarged. The probable diagnosis was "toxic hepatic cirrhosis with splenomegaly."

The PRESIDENT: 1. Bilateral Deltoid Paralysis in a child aged 1 year. A few months ago the child had an illness of an indefinite character, lasting about a fortnight. Since then there had been little movement about the shoulder-joints, the patient being able to move the forearm and hands freely. The left deltoid appeared to be completely paralysed, the right retaining very little power. 2. Cerebral Palsy in a child 1 year old. At the age of 7 months the child began to

have screaming fits, drawing up the legs and twitching the head and eyes. At the age of 10 months he had a series of general convulsions, lasting for two days, about nine each day. Since then there has been an occasional general convulsion. The child was fat and flabby. The face and head appeared large when viewed from the front, but there was much flattening in the antero-posterior diameter producing a brachycephalic condition. There were constant jerky movements of the head, trunk, and extremities, spasmodic and purposeless. The child took no notice of what was going on, seldom cried, and never smiled. He was unable to sit up or to support himself sitting up or to balance his head. The eyes were normal, and vision appeared to be present, but hearing seemed absent.

Mr. LIONEL E. C. NORBURY: Subacute Arthritis of Shoulder-joint (due to an organism of the bacillus enteritidis type) in a baby, aged 11 months, who was admitted to the hospital in August, 1911, with a history of a fall and (?) injury to the left shoulder four weeks previously. The shoulder was noticed to be swollen a week later. The child was treated for "pleurisy" three weeks before coming to the hospital. There were signs of resolving pneumonia when seen at the hospital. The swelling of the shoulder increased, and the joint was opened by an anterior incision, irrigated, and sutured without drainage. The wound healed satisfactorily. Diarrhœa with green stools occurred on the second day after operation, and lasted off and on for several days. The joint recovered free movements. The organism, isolated from the turbid fluid and lymph removed at the operation, belonged to a large group of organisms of the bacillus enteritidis type.

Mr. DUNCAN C. L. FITZWILLIAMS: Congenital Deformities in the Lower Limb in a child 7 years of age. The head of the femur was high on the dorsum ilii, nearly as high as the anterior superior iliac spine; the femur was much shorter than its fellow; the head of the tibia was displaced forwards and slightly outwards, and the ligaments of the knee-joint were very lax; the patella was absent; the foot was in a position of extreme equino-varus.

Dr. A. F. HERTZ read a paper on Congenital Dyschezia, of which the following is an abstract:—The entry of fæces into the rectum gives rise in newborn infants to reflex defæcation, and in older children and adults to the sensation of fulness, which leads to the desire to defæcate, and which may be termed the "call to defæcation." The rectum is insensitive to tactile and chemical stimulation, the call to defæcation being a form of muscle-sense, depending upon the distension of the rectum, which occurs as soon as fæces pass beyond the pelvi-rectal flexure. If a response is not at once made to the call the desire passes away. This is due to the relaxation of tone, which occurs in the muscular coat of the rectum after it has been subjected to a certain degree of tension for a short period. All cases of constipation can be divided into two classes. In the first, *intestinal constipation*, the passage of fæces through the intestines is delayed, whilst defæcation is normal; in the second class, for which I adopt the name *dyschezia*, there is no delay in the arrival of fæces at the pelvic colon, though their final expulsion is not adequately performed. One form of dyschezia depends upon a congenital deficiency of the muscle-sense of the rectum. In a mild form it is not uncommon in infants in whom the slight distension, produced by the introduction of the finger or a piece of soap into the rectum, results in the adequate stimulus. In the majority of cases the muscle-sense develops as the infant grows older, but congenital deficiency is occasionally the starting-point of dyschezia which lasts through life. The rectum is constantly filled with fæces, even after the bowels have been opened. Dyschezia should always be suspected in severe cases of constipation in infants and children, when ordinary methods of treatment by diet, aperients, and abdominal massage fail. In doubtful cases X ray examination is helpful; between half an ounce and two ounces of bismuth oxychloride, according to the age of the child, is given with breakfast, the bowels having been previously emptied by means of enemata. The pelvic colon is reached in the normal time, and in 24 hours almost all the bismuth is seen to have collected in the distended rectum. The dyschezia soon leads to secondary retention of fæces in the pelvic colon and in severe cases in still higher parts of the large intestine, as unless enemata are given the rectum is never empty, and in spite of its dilated condition there is insufficient room for all the retained fæces. Irritation caused by the latter is likely to give rise to catarrhal colitis. The child should be given an ordinary diet, and neither aperients nor abdominal massage are required, unless the stools are so hard that defæcation is rendered painful and more difficult, when liquid paraffin should be given. He should sit on a chamber for at least ten minutes every morning after breakfast, whilst he makes efforts to open the bowels, whether he feel the desire or not. If the effort fails, as it probably will for some time, he should be given either a water or glycerine enema. One ounce of glycerine is given the first day; the next day half a drachm of the glycerine is replaced by water, the third day one drachm by water, the glycerine being made more and more diluted until finally it is all replaced by water, which can then be almost dispensed with. In some cases water enemata act better, the amount used being gradually diminished.

MEDICAL SOCIETY OF LONDON.

Exhibition of Clinical Cases.

A MEETING of this society was held on March 25th, Dr. J. MITCHELL BRUCE, the President, being in the chair.

Dr. F. PARKES WEBER showed a case of Diabetes Insipidus in a boy, with Positive Wassermann's Reaction. The patient was an active, bright, and intelligent boy. He was somewhat small for his age. Polyuria and abnormal thirst were first noticed when he was in his third year, and up to his seventh year he used to suffer from nocturnal incontinence of urine; otherwise he seemed to have enjoyed good health and to have had no bad illnesses. His urine averaged about 4000 c.c. in the 24 hours; it was of very low specific gravity (1001–1002), pale, and free from albumin and sugar. The thyroid gland appeared to be small. A skiagram of the base of the skull showed the sella turcica of normal dimensions, or possibly slightly larger than the average. Treatment by thyroid feeding and mercurial inunction had so far given a negative result in regard to the polyuria. The exact amount of common salt in the diet seemed also to make very little difference.

Dr. PARKES WEBER also showed a case of Aortic Aneurysm in a married woman, healthy looking and well built. The signs clearly pointed to the presence of an aneurysm of the ascending thoracic aorta, together with disease of the aortic and mitral valves. There was no history of syphilis, but the Wassermann reaction was positive. The patient had had no children and no miscarriages.

Dr. F. DE HAVILLAND HALL showed a case of Abdominal Tumour. The patient, a man, aged 38, was admitted into hospital on March 8th last, complaining of a pain on coughing on the right side just under the ribs for three weeks. He had had a pain in the same place three years ago, but a diagnosis was not made. About a fortnight before admission a small lump appeared below the ribs on the right side. There was no history of jaundice. The paid had no relation to food. The patient had vomited once or twice after coughing. On abdominal examination a smooth rounded swelling was seen in the right hypochondriac region. Suggested diagnoses were hydatid cyst or distended gall-bladder.

Dr. W. ESSEX WYNTER showed examples of Symmetrical Degeneration in the Lower Branches of the Brachial Plexus in two sisters. The younger, aged 17, had experienced some pain and disability on the ulnar side of the hands when 12 years of age. This extended and was followed by some wasting and contraction of muscles, till the ring and little fingers assumed the "*main en griffe*" attitude, the change affecting in some degree the middle finger as well. The two inner lumbricals were affected as well as the long tendons, but there was fair action of the interossei. The affected muscles showed some degree of degeneration to electrical stimulation. When exhibited numbness followed by pain sometimes extended to the whole hand. The elder, aged 24, showed similar disability and deformity in the hands commencing at 13, but there was no account of pain. The onset was quite gradual and no extension occurred after 18. Skiagrams showed the seventh cervical transverse process in both cases extending outwards to the level of the tubercle of the first rib, which was the development seen in a majority of normal individuals. There were no indications of central

nervous disease, but it was very questionable whether operation would relieve the condition or whether the defects in muscles and joints were capable of amendment.

Dr. WYNTER also showed a woman suffering from Cirrhosis of the Liver and Spleno-portal Thrombosis whose ascites had been successfully treated by femoral drainage.

Dr. W. J. FENTON showed a case of Cervical Tabes. Eight months ago the patient first noticed that he had difficulty in using a pen, and about three months later he began to find that he could not type as quickly as usual, and was very apt to strike the wrong letter, but by adopting a more deliberate method he managed to get on fairly well, in so far as his work in this respect remained comparatively satisfactory. Using a pen had become progressively more difficult until writing was almost impossible. He also noticed that he had developed a clumsiness in the finer movements of the fingers and hands, and in order to perform them had to make use of the sense of sight wherever possible to a greater extent than is usual. On examination he had referred all his difficulty to the site of distribution of the ulnar nerve, which he said felt numbed. The most noticeable features were the marked incoördination of the hands as tested in the ordinary way, and the fact that the knee-jerks were absent. Sensation was diminished over the hands, ulnar side of the forearms, the front of the chest over the lower half of the sternum, and a patch over the lower dorsal vertebræ. He had not observed any defect of sensation of the feet. Supinator, triceps, and knee-jerks were absent. Wassermann's reaction was positive.

Dr. FENTON also showed a case of Unilateral Swelling of the Arm in a girl aged 18. The increase in size of the arm had been gradually appearing during the past two years. During the same time pain and swelling of the arm had occurred, interfering with her occupation. There were no other symptoms. The pain and swelling were noticed to occur only after using the arm, but she observed that if she lay in bed on that side the arm became painful, necessitating a change of position. The patient was a healthy-looking girl, normal in all respects except just above the right supraclavicular fossa a bony prominence could be made out. The right arm was distinctly larger than the left, and on close inspection there were seen a decided fulness of the superficial veins about the shoulder, and prominent venules at the level of the elbow. Œdema was not present. A skiagram gave no indication of the presence of an abnormally large transverse process, nor of a cervical rib, but the first rib was abnormal in size and position. The symptoms appeared to be the result of obstructed venous return.

Dr. F. S. PALMER showed two characteristic examples of Pseudo-hypertrophic Paralysis. The patients were brothers, aged 15 and 9 respectively. They were of interest as showing the disease in an advanced stage in the elder and an early stage in the younger boy.

Mr. H. J. CURTIS showed a case of Fibro-cystic Adenoma of the Left Lobe of the Thyroid Gland. The patient was an unmarried girl of 21, who had only accidentally noted the presence of the growth one week previously. The usual transverse horseshoe-shaped incision was made, leaving a hardly noticeable scar.

Mr. CURTIS also showed a case of Large Firm Fibro-cystic Adenoma of the Right Lobe of the Thyroid Gland, with smaller accessory thyroid attached to the thyroid gland to the left of the larger growth and resembling a calcified tuberculous gland. This accessory tumour showed embryonic thyroid tissue infiltrating the basement membrane. Other parts showed adult thyroid tissue with dilated spaces. There was a thick fibrous wall. Hæmorrhages were present. The presence of embryonic tissue might be accounted for by the fact that it arose in an accessory lobe, likely to be less developed than the adult gland. The patient was an unmarried woman, aged 34. Pressure symptoms had developed. Comparison of photographs taken before and after operation for removal indicated its beneficial effect and how little scarring finally had resulted.

Mr. CURTIS also showed a case of Successful Resection of 1 inch of the Urethra, impassable from traumatic stricture several months after the injury; a skiagram and kidney, from a case of Successful Nephrectomy for Right Renal Calculus; and a skiagram of the Left Kidney of a married woman aged 47, admitted for a discharging sinus in the centre of a scar of a large left lumbar incision, the second of two operations performed elsewhere, for perinephritic abscess. The skiagram revealed the cause of this abscess to have been pyonephrosis, due to a blocking of the ureter. There was seen to be a greatly enlarged left kidney containing numerous patches of caseation, and there was a well-defined elongated opaque body in the left ureter. From its opacity and definition it appeared to be a calculus, but the alternative view of tuberculosis of the ureter and kidney had been suggested. The patient had refused exploration.

Mr. W. H. CLAYTON-GREENE and Mr. A. G. H. LOVELL showed a case of Cyst of the Humerus operated on a year ago. The patient, a boy aged 9, went to hospital about 18 months ago complaining of pain at the upper end of the left humerus, following a slight fall. The only physical sign was slight swelling in the deltoid region. A skiagram suggested an innocent cyst (? sarcoma) with fracture. Mr. Clayton-Greene cut down and scraped out blood-stained débris. The cavity left resembled the inside of an egg-shell and was perfectly smooth. The pathologist had reported on the débris as being a spindle-celled sarcoma. Nothing more was done and the boy showed no sign of recurrence.

Mr. E. M. CORNER showed a case of Hydrocephalus with Ulceration of the Toe. The patient had been hydrocephalic all his life. Two months ago he was cutting a corn on the dorsum of the fourth toe of the left foot. Since then he had had an oval callous ulcer. Its edges were sharp and the base consisted of red healthy granulation. It had been suggested that the ulcer was a trophic lesion, the result of the hydrocephalus, or that it was a clean gumma, and that the hydrocephalus might have had its origin in a congenital syphilitic lesion.

Mr. A. E. BARKER showed a man in whom an Ununited Fracture of the Tibia had been joined by grafting the patient's own second metatarsal bone. Mr. Barker emphasised the importance of using autogenous vital tissue in such cases.

Mr. W. ARBUTHNOT LANE and Mr. L. E. BARRINGTON-WARD showed a girl, aged 10½ years, the subject of Rheumatoid Arthritis. She had been treated by ileo-colostomy, and had improved greatly in general condition and obtained much freer movement of joints. This was ascribed to prevention of auto-intoxication from the large bowel.

Dr. W. P. S. BRANSON showed a case of Limping, in a child, of obscure etiology for diagnosis.

GLASGOW OBSTETRICAL AND GYNÆCOLOGICAL SOCIETY.—A meeting of this society was held on March Dr. A. W. Russell, the President, being in the chair.—The President opened a discussion on Puerperal Sepsis. He pointed out that the figures of the Registrar-General proved that the country was annually losing thousands of mothers owing to insufficient care and defective methods at the time of childbirth. The following points seemed to him to demand serious consideration: (1) The widespread and persistent prevalence of what is admittedly a preventable disease; (2) the need for proper definition of the condition that must be notified, and for early fearless diagnosis and notification as an aid to effective treatment; (3) the wider and more practical recognition of the fact that the process of child-birth needs asepsis from beginning to end; (4) such further practical instruction of the student and young practitioner as will enable him to grasp the true principles involved in attendance on such cases; (5) the proper legal control and education of all nurses and midwives.—Dr. A. Johnston read a paper on Puerperal Fever as seen in the Municipal Hospital Wards. Puerperal fever was wound fever, and the infection was bacterial. The organisms varied, but streptococci were most numerous. In a total of 290 cases of puerperal sepsis there were 123 deaths, equal to a death-rate of 42·4 per cent. In discussing treatment his experience showed that the use of anti-streptococcus serum was worthless. Autogenous vaccines were useful, but only in the less acute forms, as his figures showed that more than half the fatal cases died within four days of admission, the minimum time required for the preparation of the vaccine.—Professor Murdoch Cameron read a paper on Puerperal Fever from a Consultant's Point of View. The possibility of febrile attacks unconnected with the puerperal state must not be overlooked. Diagnosis between septicæmia and sapræmia must be made, the symptoms of the former being, as a rule, of greater severity and much less

amenable to treatment. Pyæmia he rarely saw. He condemned the use of the curette, and relied on digital removal of any débris. Afterwards he swabbed the cavity and applied carbolic and camphor or 5 per cent. to 10 per cent. formalin lotion on a swab. Serum in his experience had saved the lives of several patients.—Dr. J. Craig read a paper on Puerperal Fever from a General Practitioner's Standpoint. The practitioner of to-day, he said, did not see the same number of virulent cases as the practitioner of 20 years ago. The unsavoury conditions which prevailed in the houses of the poor were more surely the causes of puerperal fever than the unwarranted use of forceps or tearing of the genital tract by the general practitioner. Attention to small matters of detail and thorough antiseptic precautions were essential to success in general practice.—Dr. A. K. Chalmers read a paper on Puerperal Fever in Relation to the Department of Public Health. His statistics showed an increase in puerperal fever during the last quinquennial period, which he thought was due to a more rigid interpretation of the Notification of Births Act. The analysis of his tables made it clear that puerperal fever is occurring in the practice of midwives and nurses at twice the rate which obtains in the practice of qualified practitioners when they have charge of patients from the beginning, and in his opinion the Obstetrical Society would do a work of immeasurable assistance to parturient women if they furthered the efforts of local authorities and medical officers of health in Scotland in having the Midwives Bill for Scotland placed on the Statute Book.—Dr. Robert Jardine read a paper on the Prevention of Puerperal Infection. In maternity hospitals, he said, aseptic methods had practically abolished septic infection; but in private work there had not been any improvement. This, he maintained, should not be so. Care should be taken to render the external genitals as aseptic as possible; greasy lubricants should not be used; instruments should be thoroughly immersed in sterilising them; labour should be conducted with as little interference as possible, and with the minimum internal examinations. Another point of great importance was to empty the uterus thoroughly. There was one surgical principle which was often overlooked—viz., free drainage. This could be obtained by raising the upper end of the bed. In conclusion, he asserted that puerperal fever could and ought to be prevented.

MEDICO-CHIRURGICAL SOCIETY OF GLASGOW.—A meeting of this society was held in the Pathological Institute of the Glasgow Royal Infirmary on March 15th, Dr. A. Freeland Fergus, the President, being in the chair.—Dr. T. K. Monro read notes of a case of Insular Sclerosis in a married woman, aged 48, who died in the Infirmary on June 17th, 1911. Symptoms had appeared first four years before, but there had been marked remissions, and only a week before death had she become unable to walk, and experienced difficulty in swallowing and impairment of voice.—Dr. M. E. Robertson demonstrated Microscopic Sections from the Brain and Spinal Cord in this case, showing patches of sclerosis in the lower part of the pons and in the cervical and upper dorsal cord.—Dr. E. T. Fraser gave a demonstration of the Ascoli-Izar or Meiostagmin Reaction as employed in the diagnosis of malignant tumours, discussing the difficulties in the preparation of the antigen, and showing how to use the Traube stalagmometer. Dr. Fraser quoted statistics of the work hitherto done, but could give no personal opinion of the practical value of the method, as the observations so far completed by Dr. Campbell and herself were insufficient to warrant any conclusions.—Dr. Milne McIntyre showed specimen and microscopic sections from a case of Primary Cancer of the Bronchus associated with chronic tubercle of the lungs, which had occurred in a man 67 years of age. Both lungs were emphysematous, anthracotic, and on section showed numerous opalescent areas of tubercle. The upper lobe of the left lung was consolidated and contained a cavity bridged by trabeculæ and lined by ulcerated lung tissue. The lumen of the bronchus leading to this part of the lung was narrowed by a carcinomatous tumour limited to a small portion of the bronchus and to a small surrounding area of lung, and without any extension to lymphatic glands or other metastases. Its histological features pointed to the submucous glands and lining epithelium of the bronchus as being the likely seat of origin.—Dr. J. Archibald Campbell gave a demonstration of the Boas Method of performing the Wassermann Reaction, in which a number of different serum quantities (0·2, 0·1, 0·05, 0·02, 0·01 of a c.c.) were employed, thus permitting the measurement of the degree in which a patient was still syphilitic, and so affording a valuable guide to treatment. A negative reaction must be given with all these serum quantities before mercurial or salvarsan treatment could be discontinued. The method was strongly recommended on account of its extreme delicacy and extraordinary accuracy.—Dr. Robertson demonstrated microscopic sections showing Cysts in Posterior Root-ganglia, which had been found in two cases of leukæmia and in one case of cerebral tumour. No connexion could be traced between any symptoms observed and the condition of the ganglia.—Professor J. H. Teacher gave a microprojection demonstration of Diseases of the Aorta and Arteries.—Dr. J. R. Riddell and Dr. K. M. Chapman showed Skiagrams illustrating various diseases and injuries.—Dr. A. M. Kennedy showed Photo-micrographs illustrating the *a.-v.* node and bundle in health and disease, and the lesions of myocarditis.—Dr. James Adams showed specimen of Gangrene of the Uterus and Appendages due to Torsion.—Mr. Donald Duff showed specimen of Ectopic Gestation in a Rudimentary Cornu of the Uterus.—Dr. A. G. Banks showed a specimen of Ovarian Pregnancy.

BRISTOL MEDICO-CHIRURGICAL SOCIETY.—A meeting of this society was held on March 13th, Mr. C. A. Morton, the President, being in the chair.—Dr. J. Michell Clarke opened a discussion on the Intracranial Complications of Suppurative Ear Disease with a review of the symptoms and diagnosis of the cerebral and meningeal complications. He considered also the difficulties of diagnosis when otorrhœa complicated such diseases as polio-encephalitis, cerebral tumour, basic meningitis, and tuberculous meningitis.—Mr. J. Lacy Firth followed and discussed the indications for preventive treatment by opening up the mastoid process, the diagnosis and treatment of lateral sinus thrombosis, and the technique of the operations for the meningeal and cerebral complications of aural disease.—Dr. Carey Coombs quoted statistics of the relative frequency of the various complications gleaned from the records of the Bristol General Hospital.—Dr. J. O. Symes alluded to the comparative rarity of intracranial complications in the acute otitis of children, occurring either with acute specific fevers or independently.—Dr. P. Watson-Williams deprecated palpation of a thrombosed jugular vein and related a case illustrating the possible latency of cerebral abscess.—Dr. J. A. Nixon expressed the opinion, based upon his many examinations in various hospitals, that the surgeon should attach little or no importance to the absence of optic neuritis.—Mr. A. J. M. Wright said that in 7 per cent. of uncomplicated aural suppuration optic neuritis was present.—The President stated that out of five cases of cerebral and cerebellar abscess he had operated upon three had recovered.—Other members who joined in the discussion were Mr. E. W. Hey Groves, Mr. E H. E. Stack, Mr. C. H. Walker, Dr. J. R. Charles, Dr. I. Walker Hall, and Dr. F. H. Edgeworth.

PUBLIC ANALYST FOR WANDSWORTH.—The Wandsworth borough council recently considered the appointment of a public analyst for the borough in succession to the late Dr. Muter. The public health committee reported that 14 applications had been received for the post, and that eight had withdrawn their candidature. The committee had interviewed three selected candidates, and submitted for final choice by the council the names of Mr. A. H. M. Muter and Professor W. R. Smith. The town clerk stated that he had received a letter from the Society of Public Analysts objecting to the remuneration, which was a salary of £500 a year, the successful candidate to find his own laboratory, assistants, and chemicals, and to analyse and report upon 2000 samples yearly. He added that the objections to the terms were similar to those advanced by the Institute of Chemistry. Both gentlemen were interviewed by the council, and stated that they understood a considerable number of the samples to be analysed were informal samples. The council appointed Mr. Muter to the vacant post. It is to be noted that the same gentleman was appointed also public analyst for the borough of Lambeth by the Lambeth borough council on March 14th at a remuneration of £500 per annum for the analysis of 2000 samples; the double appointment removes the objection to the scale of pay very considerably.

Reviews and Notices of Books.

Practical Anthropology. By THOMAS E SMURTHWAITE, Assistant School Medical Officer, Willesden. With two large charts. London: Watts and Co. 1912. Pp. 35. Price 2*s.* 6*d.* net.—No book is more needed at the present time than one which will make the investigation of man's physical structure a practical and rational study. The title which Mr. Smurthwaite has selected for his brochure led us to hope he had supplied us with such a work, but in that, we regret to say, we are disappointed. Mr. Smurthwaite's methods are founded on the belief that all the peoples now inhabiting the world are compounds—in varying degrees—of six original types of mankind. In a chart he gives crude outlines of the heads of these original types; the business of the anthropologist is to discover the proportion in which these six types occur in the various races of the world. Unfortunately the majority of individuals of every race represent not pure but mixed or intermediate types, so that the head form which one observer assigns to one type, the next observer assigns to another. With such a system the results vary according to the observer and serve no useful end. Medical men who have looked into the subject of anthropology as at present taught must have observed that the subject is merely a collection of arbitrary measurements, often made to appear learned and abstruse by the application of a really scientific method of statistics. The mathematician or biometrician is not at fault; he works on the data, facts, or measurements supplied to him by the anthropologist. The crying need at present is a rationalisation of anthropological methods. The human body is being treated as if it were an inanimate thing made to have its diameters and angles measured, and all its properties reduced to a series of meaningless indices. The human body is a living machine with its various parts designed and constructed to perform certain definite functions. Its structure is altered or modified according to the manner in which these functions are performed. Anthropology, rightly considered, is a study or investigation of the correlationship between human form and function—that is, what may be defined not only as practical but as rational anthropology. Those who take such a view of anthropology will not be inclined to admit that the system of investigation proposed by Mr. Smurthwaite is either the one or the other.

Lessons on Massage. By MARGARET D. PALMER. Fourth edition. Illustrated. London: Baillière, Tindall, and Cox. 1912. Pp. 292. Price 7*s.* 6*d.* net.——*Medical Gymnastics for the Treatment of Disease, Deformity, and Injury.* By F. F. MIDDLEWEEK, L.R C.P., L.R.C.S. Edin. London: John Bale, Sons, and Danielsson. 1912. Pp. 33. Price 2*s.* 6*d.* net.—Among the changes introduced into the fourth edition of Miss Palmer's excellent handbook are an enlargement of some of the illustrations, the colouring of several figures, the replacing of old photographs by new ones, a revision and amplification of the index, and the addition of an appendix giving the new names of muscles according to the Basle nomenclature. We have on previous occasions spoken of the author's clear and simple style and of her obviously thorough knowledge of her subject; and while no text-book of so essentially practical an art as massage can take the place of proper teaching and persistent practice, any more than it can in anatomy, a good text-book, such as this undoubtedly is, is as necessary in the one case as in the other. Miss Palmer may be well satisfied with her achievement in producing a text-book that since the first edition was published in 1901 has gone through three revised editions in addition to seven reprintings.—— There are many practitioners who have not access to a properly equipped medical gymnasium, and whose patients for various reasons can neither be sent to such an institution nor command the services of a trained masseur, but who are alive to the great benefit in certain cases to be derived from remedial exercises. It is for such as these that Mr. Middleweek has written his little manual based upon the Swedish movement method, and Dr. Arvedson, of Stockholm, in an introduction testifies to the merit of the book, in that the author has selected only the elementary exercises and has given a clear and plain description of their performance. The book does not go deeply into the matter, but so far as it goes it would be difficult to misunderstand the directions.

Index-Catalogue of the Library of the Surgeon-General's Office, United States Army. Authors and Subjects. Second Series. Vol. XVI. Skinko—Stysanus. Washington. 1911. Pp. 882.—The enormous service performed for the medical literature of the world by the continuous publication of this encyclopædic work is not half so widely known as it ought to be. The methodical cataloguing of the vast treasures of this magnificent medical library, which now contains 176,690 bound volumes and 315,494 pamphlets, constitutes an inestimable work of reference regarding all medical authors from the earliest ages, and a specific subject index of the principal medical publications of all ages and countries. The present volume contains 9890 author titles, representing 4670 volumes and 10,786 pamphlets, also 3892 subject titles of separate books and pamphlets, and 24,135 titles of articles in the medical periodicals in all civilised lands. To take the title Small-pox, for instance. After a list of 16 titles of volumes added to the library since the first series, come two columns in small print of articles in medical journals arranged alphabetically under the authors' names, English, American, German, French, Spanish, Italian, Russian, Dutch, Japanese, and Portuguese literature all being represented. The heading Small-pox (Aerial Convection of) is a cross reference to Small-pox (Transmission of), and other cross references are to be found for Bacteria, Incubation, Inoculation, Intra-uterine, Epidemics, Micro-organisms, Temperature, Treatment of Eruption, Virus, and in the Fœtus. Other subdivisions treated of in full, with list of volumes first and then of separate articles in the periodical literature, are S. (Anomalous, Atypical, or Masked), S. (Blood in), S. (Causes and Pathology of), S. (Complications of), S. (Confluent), S. (Diagnosis and Semeiology of), S. (Early Writings relating to), S. (Experimental), S. (Hæmorrhagic), S. (History and Statistics of), S. (History and Statistics of by localities). This consists of 26 columns of references to continents, countries, provinces, states, cities, and towns, concerning which special information regarding small-pox has been published. Then follow S. (Hospitals for), S. (Immunity from), S. (Malignant), S. (Mixed Infection in), S. (Parasitology and Bacteriology of), S. (Prevention and Control of), S. (Preventive Inoculation of), S. (Recurrent), S. (Surgical Operations during) S. (Transmission of), S. (Treatment of, antiseptic, by intensive vaccination, by light, with serum), S. (Urine in), S. (in animals, in children, in pregnancy, in soldiers and marines), S. and Vaccination (six and a half columns), S. and Varicella. Other important subjects treated of in this volume are Sleep, Sleeping Sickness, Medical Societies, Speech, Spine and Spinal, Spleen, Statistics, Stomach (pp. 620–810), and Stovaine. Under authors' names are given the dates when the writers flourished (when known), their Christian names in full, together with a list of their works. The publication of this work alone should suffice to constitute the United States Government a benefactor to the science of medicine at large.

MISCELLANEOUS VOLUMES.

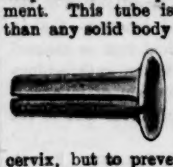
CONSIDERABLE attention is now being paid to the housing of homeless women, there being many classes for whom suitable housing accommodation is a real necessity. Mrs. Mary Higgs, whose paper on the Need for Women's Lodging-houses, read before the National Conference on Lodging-house Accommodation at the Guildhall last May, has been already noticed in our columns, has now published a pamphlet entitled *How to Start a Women's Lodging House* (London: P. S. King and Son. 1912. Pp. 16. Price 3*d*., post free), in which she discusses in considerable detail, especially as regards finances, the selection, arrangement, and furnishing of a house for this purpose, and gives much useful information, obviously born of intimate knowledge, concerning its management. She further discusses municipal lodging-houses, and concludes that there should be in every town, whether under municipal or private management, a safe and sanitary women's lodging-house.——There is nothing essentially faddist in *The Feast of Herbs*, a little pamphlet of Vegetarian Cookery (London: H. J. Glaisher. Pp. 128. Price 1*s*. 6*d*. net.). As is pointed out in the introduction thereto, undoubtedly a flesh diet suits many people much better than a purely vegetarian one, and a caution is uttered against the unwisdom of too sudden a change. But that vegetables should be made really palatable and their nutritive and therapeutic activities be preserved, is desirable not only for those who subsist entirely on them, but also for those for whom they form only a subsidiary portion of the dietary. The writer descants on the therapeutic properties of various vegetables, herbs, and aromatics, and we are glad to see a plea for the more extended use of herbs in cookery. The brochure contains some 109 recipes for vegetable dishes, soups, "drinks and oddments," some of which look very attractive.

We have received from the Rockefeller Institute, New York, an interesting pamphlet on the History, Organisation, and Equipment of this widely renowned institution, which was founded in 1901 through the munificence of Mr. J. D. Rockefeller. The institute consists of the laboratories and the hospital. There are special laboratories for pathology and bacteriology, chemistry, physiology and pharmacology, experimental biology, and experimental surgery, with a library attached, and an assembly room which seats about a hundred people, and is supplied with all that is necessary for demonstration purposes, including a stereopticon. It is used for society meetings and for the weekly conference of the institute staff. An animal house affords proper housing and care of the principal stock of animals, including horses, sheep, goats, monkeys, cats, rabbits, guinea-pigs, and birds; there is also a tank for frogs. The hospital consists of a main building of 11 storeys and an isolation pavilion. Three floors in the basement contain the lighting, heating, refrigerating, and incinerating plants, the lift machinery, the laundry, the autopsy room and pathological laboratories, patients' examination rooms, and so on. The first (ground) and second floors are devoted to offices and the accommodation for the staff. The third floor is mainly taken up with single rooms for patients, the fourth, fifth, and sixth being wards. The fourth floor contains also a hydrotherapeutic equipment and light and vapour baths, the fifth a special diet kitchen, and the sixth a constant temperature room for experiments in metabolism. The seventh floor is occupied exclusively by laboratories, while the eighth, or "roof," floor has an emergency operating suite. The medical work of the hospital is under the charge of the director of the hospital, who has also the title of physician to the hospital. There are a resident physician and a number of assistant resident physicians, all of whom receive salaries, board, lodging, and laundry. Special workers in chemistry, pathology, bacteriology, and physiology reinforce the clinical staff in the investigations carried on in the hospital. The capacity of the hospital is about 70 beds, and the work at any one time is confined to selected cases that bear upon a limited number of subjects chosen for investigation. Patients are admitted only by the resident physician, to whom cases are referred by medical men or hospitals, or by direct application. The director issues bulletins from time to time informing medical men of the diseases chosen for investigation. No charge for professional care or services or for board and lodging is made to persons treated in hospital. All discoveries and inventions made by any person while receiving compensation from the institute become the property of the institute, to be by it placed freely at the service of humanity, in accordance with the beneficent purposes of the founder. Appointments to the scientific staff are made by a board of scientific directors on the recommendation of the director of the laboratories or of the director of the hospital. As a rule, all such appointments carry a stipend and engage the full time of the incumbents. Such appointments are usually desired for (1) experience in methods of investigation generally; (2) training in a special line of investigation; (3) opportunity to work more or less independently on a particular problem. The qualifications include "preliminary training such as would be represented by a medical degree, and, in addition, a knowledge of methods of research; or a training such as would be ordinarily appropriate to the higher degrees in the biological or physical sciences." The institute publishes the *Journal of Experimental Medicine* (21*s*. per annum, single copies 3*s*.) and at irregular periods a series of *Monographs* of the Rockefeller Institute for Medical Research ($1 each).

New Inventions.

A UTERINE-CERVIX TUBE.

THE cervical tube is used after dilatation of the uterus to keep the cervix open for purposes of diagnosis and treatment. This tube is obviously safer and more convenient than any solid body in the cervix, as it need not be removed during any discharge, and can even be worn by the patient in cases of dysmenorrhœa and sterility, where a prolongation of the cervical dilatation is often found useful. The shape of the tube greatly helps to keep it in the cervix, but to prevent any slipping a small gauze plug can be placed in the roof of the vagina against the flange of the tube. I am indebted to Messrs. Arnold and Sons, of Giltspur-street, London, E.C., for the trouble they have taken in carrying out my idea.

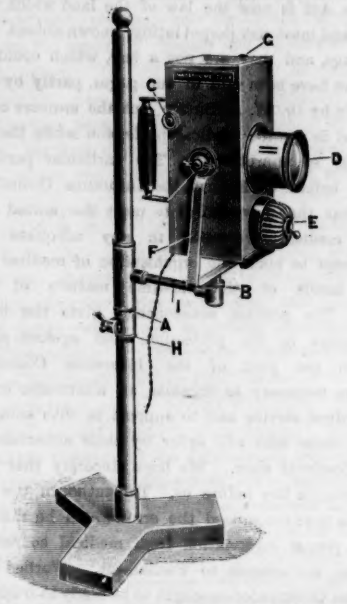


London, N. ROBERT WISE, M.D., C.M. Edin.

A NEW AURAL LAMP.

THE lamps which the instrument makers have hitherto supplied for the use of the aural surgeon have been characterized by certain disadvantages. Some become extremely hot when in use and cannot safely be handled. Others, under slight vibration, have a provoking habit of shifting from the position in which they have been placed by the surgeon. The direction of the cone of light is thus altered and may no longer be suitable. In the lamp herewith illustrated these and many other matters have received attention, and prolonged use has not shown that any essential has been omitted. Even the matter of easy cleaning has been considered, and though made of brass the lantern is covered with aluminium paint and varnished, and therefore can be cleaned in a moment with a damp cloth. The following is a description of the various parts: A, Ratchet, to ensure that the arm (I) shall remain in whatever position it is placed. B, Ratchet, to ensure that the lamp when turned in the right direction shall remain there. C, Milled

head, for raising or lowering the burner, in order to bring it opposite the lens (the burners vary in size). D, Telescopic tube carrying the lens; this slides easily and focuses the light. E, Tumbler switch. F, Cradle carrying the lantern; on the opposite side this is extended to the top (G) in the form of a cleat, for winding up the flexible wire in a figure-of-8 manner, thus preventing kinks. G, Top of cleat just visible. H, Movable clamp to be fixed with the thumbscrew



at the required height. I, Arm carrying the lantern and working on the ratchet at A. As the lantern never gets hot it can safely be used as a hand lamp. Nernst or ordinary burners can be used; the lens in the illustration is adapted to the Nernst. Originally designed for consulting work, this lamp has proved most useful during operations Messrs. Mayer and Meltzer, 71, Great Portland-street, London, W., are the makers of the lamp, and have accurately carried out my instructions.

Devonshire-place, W. CHARLES HEATH, F.R.C.S. Eng.

THE LONDON COUNTY COUNCIL AND MEDICAL AFFAIRS.

Medical Officers of Special Schools: Their Duties and Remuneration.

THE Education Committee of the London County Council on March 13th approved a scheme defining the duties and revising the remuneration of the local medical officers appointed to residential special schools, industrial schools, and places of detention under the Council's control. The special schools subcommittee stated that at present the duties required of the medical officers varied considerably at the different institutions and a greater degree of uniformity was desirable. The following list of duties, with such variations as special conditions made necessary, had therefore been drawn up:—

1. To attend the school at least once every week on a fixed day and hour and at such other times as may be necessary, and to enter the visits in a book kept for the purpose.
2. To examine the children on admission and make the necessary entry on the medical card.
3. To attend any cases of illness amongst the children and residential staffs; to make notes on cards kept for the purpose of all serious cases of illness and the treatment prescribed.
4. To vaccinate any child when it may be found necessary.
5. To furnish monthly medical reports to the school medical officer.
6. To furnish any other reports or certificates that may be required to the school medical officer.
7. To give immediate notice to the coroner of cases of sudden or violent death or cases where he does not feel justified in giving a death certificate of any inmates, and to report the circumstances to the school medical officer.

Consequent upon the revision of the duties of the medical officers, and also upon the fact that in the past there had been no common basis for fixing their remuneration, the subcommittee had drawn up a scale applicable to residential schools and also one suitable for places of detention, where the conditions differed to some extent. The subcommittee recommended that in future a payment of £30 per annum be made to local medical officers attached to each of the residential special and industrial schools to cover the performance of all duties required up to a total number of persons of 30 (including children and staff), and that for each person beyond 30 an extra payment be made at a rate of 8*s.* a head per annum. If the proposed scale were brought into operation at once the additional cost would only be £3 13*s.* per annum. Nevertheless, the subcommittee was of opinion that in cases where the present amounts paid to doctors were lower than the revised scale those amounts should be raised to the scale as from April 1st, 1912, on account of the additional duties imposed, but that those salaries which were higher than the proposed scale should remain unaltered so long as the positions were held by the present medical practitioners. The revised scale should apply to future appointments.

The conditions at places of detention were not quite comparable on account of the large number of children passing through them, and the comparatively short period of their stay there. The subcommittee, however, was of opinion that the basis of payment as far as possible should be the same—viz., £30 a year for the first 30 children and staff, with an additional 8*s.* a head per annum for each additional unit up to the extent of the recognised accommodation. It would be necessary to make payments in respect of medical certificates required, and the subcommittee proposed that in respect of these additional services payments at the rate of £40 a year should be made for each 1000 children passing through the institutions. Although an exact comparison could not be given it might be assumed that the expenditure would not be more under the proposed arrangements.

In some cases the salaries at present paid to the medical officers included the supply of all necessary drugs, but in the majority of cases the cost of drugs was borne by the Council. This want of uniformity could not be considered satisfactory, and the subcommittee advised that in future the Council should defray the cost of all drugs. In the case of the more expensive drugs and those which were likely to deteriorate in quality, it was desirable that the doctor's prescription should be made up by local chemists, but there was no reason why the cheaper and more common drugs should not be kept in suitable places on the school premises. A dispensing cupboard should therefore be provided at each institution.

The Education Committee agreed to all these proposals.

Dental Treatment of School Children.

The Children's Care Subcommittee reported that it had received an offer from the board of directors of the St. Marylebone General Dispensary to undertake the dental treatment of children. The dispensary was centrally situated for a number of schools and the subcommittee recommended that arrangements be made for the dental treatment at this dispensary of children of six, seven, and eight years of age on three half-days a week, to be increased to four if necessary. An offer from a local committee at Fulham to provide dental treatment had also been received, and the subcommittee proposed that it be accepted, treatment to be provided on four half-days a week for children of six, seven, and eight years of age, and for an average of eight to ten cases a half-day to be sent to the centre by the Council. Assuming that an average of eight new cases a day was maintained, treatment would be secured for 1400 children annually at each centre, and the maximum cost of each centre would be as follows:—

Salary of dentist (four half-days a week)	£200
Salary of anæsthetist (one half-day a fortnight)	25
Capitation payment on 1400 cases	140
Nurse on four half-days a week	40
Salary of inspecting dentist (one half-day a fortnight) ...	25
	£430

An organiser to make appointments for the children and follow up the cases would also be necessary, and would cost £100 a year for the two centres. With the provision of apparatus, which would remain the property of the Council, the cost of the two schemes would be £1000.

The committee decided to accept both these offers.

THE LANCET.

LONDON: SATURDAY, APRIL 6, 1912.

The National Insurance Act.

TIME runs on and the medical profession still remains in a regrettable condition of uncertainty as to what are the prospects of professional life for a large section of our constituent body under the working of the National Insurance Act. As we reported a fortnight ago the British Medical Association have made certain nominations to the Advisory Committee, which is coöperating with the Insurance Commissioners to arrange the regulations under which the Act shall be worked; but the nominees of the British Medical Association are pledged to withdraw their assistance if the regulations do not comply with the strongly expressed requisition of the medical profession, whose well-known form needs no further repetition. Surely the time is getting close when we should learn that the Insurance Commissioners are willing to frame regulations in accordance with the demands of the profession; surely some public announcement should soon be made of what has been done. If matters are going smoothly it would relieve much apprehension to know this; if the discussions have so far not been harmonious it might be extremely useful to allow any difficulty to be ventilated. We know perfectly well that the persons engaged in carrying on a delicate series of negotiations dread nothing more than publicity while they are making up their minds, but we have recently in general political affairs, as well as in medical affairs, had examples of the misunderstandings and actual damage which may result from a too anxious concealment of information from the public. If the regulations which the Insurance Commissioners intend to promulgate are such that they cannot be accepted by the medical profession, the withholding of medical benefit seems to be the course that will be adopted by them; and in readiness for this the British Medical Association is devising a scheme for a national medical service, the design being of course to resist the continuance, under some dominance of the coöperative clubs, of the evils which, notably during the last 20 years, have been rampant in club practice.

Ever since we published "The Battle of the Clubs" the eyes of the medical profession have been open to the manifold evils which can creep into contract practice. Armed with this information the late Dr. J. G. GLOVER, who for many years was one of the Direct Representatives of the profession upon the General Medical Council, approached the Friendly Societies, with the leave of the Council, the hope being that full advantage would be taken of any desire to put the relations of those bodies with the medical profession upon a better footing. Dr. GLOVER'S intervention, however, proved of no avail, though he was widely trusted and affectionately regarded by both sides. The abuses remained unaltered. The Friendly Societies are, and always have been, most valuable agencies for the promotion of thrift and order among their masses of members, and they relied upon their honourable record in refusing to reconsider the unfair treatment of their medical officers. A National Insurance Act is now the law of the land which may perpetuate, and must risk perpetuating, known abuses. All the good things, and they are not a few, which could be said for the Act have been said in our pages, partly by ourselves and partly by Dr. W. A. BREND, but the measure cannot be acquiesced in by the medical profession while the medical position is so unprotected. The particular peril of the situation before us is that the Insurance Commissioners, finding that they have failed to meet the united demands of the medical profession in any adequate manner, may attempt to place the organisation of medical benefits in the hands of the old-time masters of contract practice. The position consequently gives rise to serious apprehensions in the profession, and against any such action on the part of the Insurance Commissioners it may be necessary to organise an alternative scheme of public medical service and to support it with subscriptions in aid of those who will suffer by their adherence to the right professional view. We hope sincerely that no such painful struggle lies before us. The author of the measure has by this time recognised the error which he made in not obtaining proper information from medical sources before introducing his scheme to Parliament. Warned by this mistake the Commissioners ought to be ready to frame regulations to which the medical profession can give adherence. And they must know that if they fail to do this the medical profession will not work under the old conditions of contract practice. Medical men have said this in congress; they have said it individually; their attitude has been endorsed by the universities and corporations whence they obtain their statutory right to practise; and it is idle to expect from them a change of front.

Psychiatry in England: its Present State and its Outlook.

To a few of its most devoted students, who have long been aware of the difficulties under which it labours, psychiatry in England is a subject that calls urgently for reform. Whether this opinion is shared by the majority of alienists does not for the moment concern us; it is sufficient that those who have the interests of psychiatry at heart can no longer regard the situation with complacency. No one who has had the privilege of working in the neurological and psychiatric schools of the continent will, we suppose, be inclined to deny that English psychiatry does not at present enjoy there that reputation which it might, and is not accorded that honoured place which is so freely acknowledged by our continental *confrères* for other branches of English medical science. At congresses on psychiatry and allied matters English representatives have, as a rule, been few and far between. There is held in Munich in autumn a post-graduate course (*Fortbildung*) specially for the clinical and pathological study of the subject, a course which is valued so

highly that it has been attended by as many as 50 or 60 men, of whom, on an average, one-third are foreigners. Last year, we understand, there was one Englishman in the number. Again, the output of medical literature within recent years has been prodigious. This may be due in part to increased facilities for publication, but, on the other hand, what are these increased facilities, in the shape of journals and reviews, but the reflex of increasing enthusiasm for research? Supply and demand are adjusted to each other. Of no department of medicine is the statement more true than of psychiatry; half a dozen journals bear witness to the fact. In England, however, psychiatry has not taken that share in this advance which the wealth of our material would amply justify.

The asylums of England and Wales contain 97,000 inmates: in 1910 there were some 20,000 admissions—material the abundance of which must impress the most indifferent observer. But with the exception of one or two places where the inspiriting devotion of a few men is overcoming all difficulties, there are no schools or clinics to attract the over-seas visitor or to enlist the foreign graduate as a voluntary worker. It is true that signs are not wanting of a change: three universities, at the instance of the Educational Committee of the Medico-Psychological Association, have recently instituted a course of study for a post-graduate diploma in psychiatry, and a special section for the study of mental disease, long overdue, is about to be formed by the Royal Society of Medicine. Why has psychiatry in England, it may nevertheless be asked, not come as yet into its own? We commend to the special attention of the profession two papers which appeared in the *Journal of Mental Science* for January by Dr. R. G. ROWS, assistant medical officer to the County Asylum, Lancaster, and Dr. DAVID ORR, senior medical officer to the County Asylum, Prestwich, respectively. Both of these physicians have made notable contributions to the scientific study of their specialty, and when their temperate criticisms of the present unsatisfactory state of affairs and their reasoned pleas for reform are weighed by the unbiassed reader he will, we feel sure, agree that the time is ripe for material alterations in the system in vogue in this country unless English psychiatry is to fall still further behind. Dr. ORR explains in a convincing manner the limitations surrounding the post of assistant medical officer in an average asylum. The latter has no legal position, is condemned to celibacy until he becomes a superintendent, has no real career in the sense that can be applied to an assistant physician or surgeon at a general hospital, and if he has any desire for scientific research it is ere long stifled by the incubus of routine work. If he attends to the clothing, feeding, and keeping clean of his patients (and there may be hundreds of them), makes daily rounds, enters the results of an elementary physical and mental examination on forms provided for the purpose, he is supposed to have fulfilled his whole duty. Yet, as Dr. ORR points out, so appalling is this mere routine in the demands it makes on his time that the assistant medical officer is quite unable to devote himself, even if he feels inclined, to the more minute study of the perverted mentality of his 500 patients, any one of whom might afford interesting material to the acutest intellect for a considerable time. Though he recognises the scientific side of psychiatry and endeavours to keep abreast of the work done by others he has no encouragement from the lunacy service, and, remaining it may be for years in an intolerably dependent position, finds that his interest and his enthusiasm are gradually killed. In Italy, France, Germany, Switzerland, Norway, Denmark, and in some asylums in Russia the assistant medical officer is autonomous in his own section.

This matter, however, is only one, and not the only important one, of the topics concerning asylum administration that call for reform, and are dispassionately criticised by Dr. ORR. Both Dr. ORR and Dr. ROWS put in a powerful plea for the development of psychiatric science as a branch of public health. When it is learned that of the 20,000 patients admitted to the asylums of England and Wales during 1910 30 per cent. were discharged after a longer or shorter detention, it may safely be affirmed that had many of them received advice in reference to their condition from some one who had experience of mental disorders, prior to their admission, it would not have been necessary for them to have been admitted to an asylum at all. Yet no provision is made for the preliminary stages of mental disorder in this country, and it is a commonplace to be told that the first symptoms of mental trouble appeared months before a patient's admission to an asylum. The very men who enter the asylum service, and who alone can acquire an intimate knowledge of mental diseases, are forbidden to carry that knowledge, as Dr. ROWS says, into the outside world for the benefit of those suffering from these diseases. The anomaly of the situation, as it exists to-day, is equalled only by its irony. They do these things better abroad, as many of our readers must know. Some years ago there was an agitation in Edinburgh to form a psychiatric clinic in connexion with the Royal Infirmary, but nothing came of it, we understand. In London, however, the munificent benefaction of Dr. HENRY MAUDSLEY will ere long remove the reproach that the largest city in the world has no psychiatric out-patient clinic and receiving wards such as many hospitals in Germany, even in the smaller towns, possess. But we move slowly, as Dr. ROWS points out by quoting the following passage from a report of the visiting committee of Hanwell Asylum. "Such an asylum as Hanwell ought to do something more for the benefit of science. There ought to be a more numerous medical staff and a permanent clinic attached to such an institution. We have statistical tables before us giving the number of patients admitted and discharged, cured, relieved, and dead, but where are its pathological reports? Since the opening of the asylum 1261 patients have died, yet the post-mortem examinations have been made privately, neither student nor professor being benefited by witnessing the result. The county asylum of Hanwell ..... is as much a hospital as St. George's or St. Bartholomew's, and ought to have a medical staff as numerous and efficient as those of any other metropolitan hospitals." Dr. ORR'S sole comment, eloquent from its very brevity, is that this report was published in the year 1849.

The Effect of the Strike on Public Health and the Hospitals.

FOREWARNED is forearmed. This trite phrase really seems to sum up the position of our public health organisations and of our principal hospitals in relation to the deplorable coal strike the end of which we all hope is now in sight, despite the desire to prolong the struggle in many places. Most mercifully the strike did not descend upon us at a moment's notice, but time was given for the far-sighted to make due provision for themselves and to warn others again and again of the necessity for preparation. As it is, of course, the coal strike has done immense harm to the nation's trade, and has caused great distress in many poor quarters; but on the whole it would appear that, thanks to the precautions taken by public bodies, the misery among the working classes has been less deep and widespread than certain picturesque accounts have made out. This conclusion is largely based upon the replies which have reached us to questions addressed to correspondents in various cities and to the medical officers of health for large industrial centres throughout the country. Our questions were sent out at the close of the fourth week of the strike, and we wish to thank our informants for their prompt and courteous answers, which conveyed far more detailed information than we can attempt to summarise here.

The medical officers of health were asked whether, in their districts, the strike had yet produced any effect on the public health through shortage of fuel, increased price of food, or sanitary difficulties. The answers were strikingly alike. By the end of March no injurious effects upon the public health could be detected in Reading, Northampton, Nottingham, Hull, Bradford, Plymouth, Cardiff, or Forfar, or in such poor districts of London as Bermondsey, Poplar, and Islington. In each case the sanitary service has been maintained without trouble, and there has been no increase of sickness or mortality, while at Bradford there has been a marked and progressive fall in the infant death-rate. The authorities all seem to have laid in large stocks of fuel. The only towns which report noticeable distress among the population are the pottery towns, Northampton, and Cardiff, but in the last this has been largely alleviated by organised public action and private generosity. The medical officer of health of Nottingham notes that although there is no increase of distress in the city, and fuel is still plentiful there, the villages around are suffering severely. Almost all our informants state that the price of food has not risen in their districts; indeed, in Bermondsey prices have shown a downward tendency. Here it appears that an accumulation of manure has occurred through railway difficulties, while in Islington the smoke nuisance has increased through the use of bad coal and slack by manufacturers. Otherwise no ill-effects are reported at present.

Turning now to the influence of the strike on the work and resources of the hospitals, we find here also very much the same state of affairs in very different localities. The hospitals for the most part were not caught unprepared, and whatever distress has prevailed in the great industrial cities has not been reflected in an increased strain upon their beds or out-patient departments. Some weeks ago a leading newspaper sent one of its staff to look into the coal bunkers of the London hospitals and to report on their state of preparedness for the ensuing coal war. It appeared that most of them had at least three or four weeks' store of fuel in hand, and several had much more. The more recent inquiries made by our correspondents at the principal city hospitals of the Kingdom show that everywhere the same foresight and economy have yielded the same happy result. In spite of the increasing scarcity of fuel and the difficulties in maintaining supplies the hospitals have kept at work and the patients have not suffered. The answer to our question whether the demands upon the beds have increased is in the negative at all the leading hospitals of Bristol, Aberdeen, Dublin, Belfast, Edinburgh, Glasgow, Sheffield, Norwich, Liverpool, and Birmingham. At Newcastle-on-Tyne there has been a slight increase in the pressure on the beds and out-patient rooms, and the suggested reason is that the out-of-work colliers have taken this opportunity of having their lesser troubles attended to. In the Barnsley, Chesterfield, and Rotherham districts, on the other hand, the result of the strike has been rather to reduce the amount of work thrown upon the hospitals, since with the closing of the pits and large works the number of accidents has diminished, and this has relieved the casualty and surgical departments of much of their usual work. The Manchester hospitals report that the number of patients applying for relief has been normal, except at the Royal Eye Hospital, where many colliers have chosen this time for having their errors of accommodation corrected. At Manchester, as at most of the cities we have dealt with, all the hospitals were ready for the crisis and added largely to their coal stores just before the strike became absolute. In Bristol, where the indirect distress has been less than in most large cities, the scarcity of fuel has not made itself felt in hospital administration, but a continuance of the strike threatens the gas supply, and this would be a most serious matter. Since it is the practice of most great institutions to obtain provisions by contract, the price of food would not affect the hospitals generally throughout the country, and only here and there do we learn of difficulties in obtaining supplies. The whole story, as we have summarised it, shows that those upon whom the responsibility rests to guard our public health and succour our sick poor put themselves ready in a wholly admirable manner to face impending dangers. They are as aware as all of us that those dangers, or their effects, have not yet passed away.

A DRAMATIC PERFORMANCE IN AID OF THE MIDDLESEX HOSPITAL.—Applications for tickets for the performances of *The Military Girl*, at the Savoy Theatre on April 16th to 20th, in aid of the Middlesex Hospital, are beginning to come in. A musical effect is to be introduced with the aid of the drums of the 1st Battalion Grenadier Guards, who will be in attendance by kind permission of Colonel the Lord Ardee commanding. The orchestra will be composed of over 30 professional instrumentalists under Mr. Cecil Forsyth, and Mr. Lynn Royd, the producer, is sparing no pains to bring the production up to the standard of a professional performance. Tickets can be obtained from Mr. Montagu Abrahams, 114, Park-street, W.; Messrs. Keith, Prowse; Messrs. Ashtons Mitchell; and Messrs. Harrods.

Annotations.

"Ne quid nimis."

THE WAGES OF INTELLIGENCE.

IT is seldom in England that minds which have been trained in natural science turn to the study of economic questions. Dr. Beattie Crozier, whose book on "Sociology Applied to Practical Politics" was reviewed in our columns of Dec. 16th, 1911, unconsciously throws a light on the point of view of a certain class (which would necessarily be included under the name of Socialists, though not necessarily representative of Socialism) towards scientific work. The attitude of doctrinaire Socialist writers and teachers towards natural science is difficult to understand. Inventors, discoverers, men of science, have been ruled entirely out of consideration in the economic theory of Karl Marx. Marx does not now possess the authority that once was his, and the Fabians are (some of them) prepared to allow the scientific worker a wage superior to the manual labourer, because they are well aware that manual labour cannot progress in the modern world without the teachings and applications of science; but the more advanced types of Socialists would let the man of science either to take his reward out in honour or go, in which last event the new *régime* would educate a new race of intellectuals who would accept the honourable and honorary terms. This attitude as regards the medical profession certainly seems to be favoured by Government Departments in the last few years, both in England and the continent. In the case of Governments the attitude is due not to Socialistic ideas so much as to an over-readiness to believe that the highest work—except where the bureaucracy is concerned—is so pleasant and dignified that it would be bad economy to pay highly for it. This theory may be derived from Fourier, who laid down definitely that distasteful labour (he instanced that of a night man) should receive the highest salary, and that the labour of the brain, being intellectual, and therefore a pleasant exercise, should receive the lowest or none at all. The remuneration of the highest efforts of literature being so negligible, as it usually is, proves that society has accepted the theory to a limited extent, and the salaries paid to medical men for official services owe their usual slenderness to the same direction of idea. We are not wholly endorsing the violence of Mr. Boythorn, who prayed that the Admiralty should have all its legs broken for their treatment of naval surgeons, and that it should be "a transportable offence in any qualified practitioner to set them." The surgeon's lot in the Royal Navy has lately been improved, though it will still stand improvement. Mr. Boythorn's further criticisms have more point where he refers to "the corporations, parishes, vestry boards, and similar gatherings of jolter-headed clods, who meanly take advantage of the ardour of gentlemen in the pursuit of knowledge to recompense the inestimable services of the best years of their lives, their long study, and their expensive education with pittances too small for the acceptance of clerks. I would have the necks of every one of them wrung, and their skulls arranged in Surgeons' Hall ..... that the younger members of the profession might understand from actual measurement *how* thick skulls may become." Let it be granted that salaries are better than they were 60 or 70 years ago ("Bleak House" was written in 1853), and let it be granted that local government is now conducted upon an inconceivably higher plane, the fact still remains that an economical public body always tries to save money by getting medical service for nothing or for the lowest possible figure.

LECTURES, TEXT-BOOKS, AND MONOGRAPHS.

THE student of any branch of science must almost of necessity acquire some of the essential information in regard to the fundamental principles of his subject from lectures, text-books, or special monographs. It is of some interest to consider the rôle of each of these sources of information as educational factors. The lecture as a method of imparting information has much to commend it, and was until recently perhaps the most important, but at any rate in the medical curriculum the lecture has somewhat fallen from its pride of place, partly, no doubt, due to the multiplicity of text-books which are now available. The lectures of a good teacher are probably one of the most instructive agencies for the best education, especially when they are appropriately illustrated by diagrams, experiments, and demonstrations. Unfortunately, it not infrequently happens that the ablest and most learned exponents of a scientific subject are by no means good lecturers. A good teacher requires not only to have a satisfactory grasp of his subject, but to have both range and perspective, and in addition to possess personality and the gift of expression. The advantage of lectures is that they can be kept up to date and that the material can be adapted to the special needs of the audience. Again, to some people whose memory is largely of auditory character the impressions carried away from lectures are more easily retained than those obtained by reading. The personal experience of the lecturer gives, moreover, a continuity of thought to the student, and may impress him with the importance of order, method, and exactness, which are all so essential in scientific matters. The systematic text-book is a comparatively modern institution, but is certainly a very valuable educational agency. None the less, it requires to be used with judgment and discretion. In a progressive science, and more especially in regard to any branch of biology, in which opinion must of necessity be in a state of flux if progress is taking place, a text-book must be to some extent behind the actual current state of opinion on the subject. Again, many text-books are mere compilations showing little or no originality, and too often they repeat the inaccuracies or mis-statements of their predecessors. The modern text-book of medicine is usually a systematic treatise—often the work of many authorities under one or more editors. The larger works of this kind are rather works of reference for senior students and practitioners than manuals for students. Since each disease is described practically as an entity the descriptions are bound to be of somewhat stereotyped character. The medical text-books of the middle of the last century were descriptive rather than systematic in construction, and since symptomatology was more developed than pathology they were more graphic than those of the present day. In the hands of masters of style like Watson and Trousseau the text-books of medicine were dramatic and interesting, indeed, they were practically printed lectures. The fertility of research in regard to the pathology and pathogeny of disease has probably been the cause of the change in type. Symptomatology, though an important part in the students' curriculum, only becomes vitalised by a study of etiology and pathology. The advances in these ancillary aspects of medicine have led to a great increase in the number of text-books, and probably also by increasing the number of lectures, and therefore the demands upon the student's time, have been partly responsible for the decline in the popularity of lectures. The increasingly practical character of medical education is also a contributing cause. Again, a successful demonstration, being less formal than the set lecture, is more striking in its appeal to intelligence and memory. Great as the increase in text-books undoubtedly is, that of

monographs and special articles is even greater. The number of special journals, reviews, and periodicals multiplies almost continually. Each contains special articles, reviews, or original papers. Practically, monographs fall into two chief groups: first, what are, to all intents and purposes, special text-books, giving a review of the literature and of current opinion upon a certain condition or group of conditions; and, secondly, papers giving records of original observation. The former are practically advanced text-books, with a wide outlook over a limited field; the latter represent new work. The records of original work possess a great educational value, and they should undoubtedly be utilised more than they are at present by advanced students and by post-graduate workers. The essential tendency of the text-book is to present what is generally accepted, whereas in the records of original work there is an attempt to advance even sometimes by the overthrow of what is generally accepted and orthodox. It is stimulating both to the imagination and to the critical faculties to read the monographs in which great advances have been made, indeed it is a useful exercise to-day to read the papers of such workers as Bright, Addison, and Jenner, as well as those of the modern investigator. In any well-organised scheme of medical education all three of the agencies we have been discussing—lectures, text-books, and monographs—should have their place in preparing the student for his most important work—viz., the high development of his powers of observation and the faculty of appraising what he observes at its due value in the intellectual exercise of diagnosis and in the practical art of treatment.

ARM-TO-ARM VACCINATION.

WITH the use of glycerinated calf-lymph that has now been universal in this country for some years there arises a danger of forgetfulness as to the precautions necessary in carrying out vaccination, supposing calf-lymph is not procurable, and the arm-to-arm method with humanised lymph is the only alternative. Such may often be the case in outstations in our colonies, where no medical man is available to perform, or superintend, the operation, which has frequently to be done by a native subordinate, possibly neither over-careful nor thoroughly acquainted with the reasons for the minutiæ of correct procedure. We believe that in India the use of humanised lymph has been now almost abandoned, except in the provinces of Lower Bengal and Bombay. Glycerinated calf-lymph and lanoline lymph are found to act quite satisfactorily. It is most desirable that their use should be extended, to avoid any possibility of disease transmission, and to take away the slightest cause for objection. There need be no apprehension as to disease transmission in arm-to-arm vaccination if the following simple rules are kept in mind—rules which in days gone by every medical student had to learn: 1. The child from whom the lymph is taken, the vaccinifer, must be perfectly healthy in every way and be of healthy parentage; obviously any syphilitic or tuberculous taint would render an infant, even if apparently healthy, an unfit subject. 2. The lymph must be taken only from perfectly formed vaccine vesicles and on the eighth day. 3. The vesicle should be pricked or scratched with a needle or lancet, previously sterilised in a spirit flame, great care being taken not to draw blood. 4. The lymph is then allowed to exude of itself, no pressure being applied to squeeze it out; only colourless lymph, no bloody fluid, must be used for vaccination. 5. The arm of the child to be vaccinated should be carefully cleansed. 6. The arm is then taken in the vaccinator's left hand and the skin put on the stretch. With the lancet, previously sterilised, it is gently scratched in four places; the scratchings should penetrate the outer skin, but should not draw blood, or only to the very slightest extent. 7. The lancet is then dipped in the lymph of the vaccinifer, and gently rubbed over the four scratches on the arm of the child to be vaccinated. 8. The lymph should be allowed to dry on the exposed arm, and great care taken to prevent its being rubbed off by the sleeve, or any article of clothing touching it. 9. A pad of sterile lint (without any antiseptic) should be applied over the vaccinated arm, and kept in position with plaster, to protect the vesicles from abrasion or infection. When the vesicles develop, beginning as papules about the third day, and becoming fully formed, distended, and pearly white, with a central depression, on the eighth day, they should be punctured to allow the fluid to exude; it is necessary to protect them with a soft pad, and the arm should not be used until all action has ceased, with formation of scab, about the fourteenth day. If impure lymph be used for vaccination, containing staphylococci or streptococci, there may be systemic poisoning, as well as ineffective protection against small-pox. The poison of syphilis may be introduced if any blood be mixed with the lymph. We are not aware of any other disease poison having been actually proved to have been transmitted in this way; but analogy would lead to the belief that any of the affections known as spirilloses (syphilis, yaws, spirillum fever) and leishmanioses (kala-azar, &c.), and possibly trypanosomiasis, that are, or may be, conveyed by the bites of insects, might also be transmitted if the vaccine material were mixed with blood instead of being, as it ought to be, perfectly pure. The danger would not exist if an intermediate stage of development were necessary within the body of the insect host that usually transmits infection, such as is the case in malaria, and possibly in sleeping sickness. With regard to the other diseases that are directly transmissible, no such accident need be feared, provided the above directions are carefully carried out.

A MEMORY OF "R. L. S."

Robert Louis Stevenson had much to do with doctors all his life, for his frail body was often in need of medical care for months at a time, and hæmorrhages from the lung on occasion laid him almost at death's door. His delightful letters, indeed, tell a long tale of broken health, punctuated over and over again with prostrating attacks of illness. It is not surprising, therefore, that there are many medical figures in his tales and essays; nor will anyone who knew him doubt the sincerity of his tribute to the medical profession in the dedication to "Underwoods," which begins: "There are men and classes of men that stand above the common herd ..... The physician ..... is the flower (such as it is) of our civilisation." Stevenson's regard for his medical attendants often showed itself in graceful and characteristic forms which are well known to the lovers of his books; but we have before us a further proof of this in his own handwriting, which we think has not hitherto been published. Through the kindness of Dr. I. D. Chepmell, formerly our Paris correspondent and for some years medical attendant to Stevenson at Bournemouth, THE LANCET library has been enriched by an illustrated copy of "Treasure Island," which was presented by the author to Dr. Chepmell, "whose visits make it a pleasure to be ill," at the close of 1886. On a fly-leaf of this volume is the following written inscription:—

"My Dear Dr. Chepmell,—

In one thing our professions are alike, in that it is ours to cheer the sick; it is yours, not mine, to bring them help; but we both seek to bring them comfort; in that matter we are *confrères;* and it is not only the grateful patient, but the admiring *confrère*, who sends you this volume, and begs you to believe him, Yours most sincerely,

ROBERT LOUIS STEVENSON.

Skerryvore, Bournemouth, Dec. 12th, 1886."

It is interesting to note that in the following year Stevenson

wrote to his friend, Sir Walter Simpson, from Saranac Lake in North America, "Old Dr. Chepmell told Lloyd: any one can stay a year in England and be the better for it, but no one can stay there steadily and not be the worse."[1]

HÆMOLYTIC JAUNDICE DUE TO MALE FERN.

JAUNDICE is a rare result of the administration of male fern, and, like other toxic results (e.g., amaurosis and sudden death), has been observed principally in Germany and Italy where doses of the ethereal extract as large as from 15 to 20 grammes are given. In 1894 Grawitz investigated this jaundice and attributed it to an increased destruction of red corpuscles in the liver, as he found that their number in the blood was reduced after administration of the drug, but this conclusion was based on cases in which jaundice did not occur. In a recent number of the *Progrès Médical* Professor G. Etienne and Professor M. Perrin have described two cases in which jaundice occurred, and its hæmolytic origin was conclusively shown. A robust man, aged 29 years, suffering from tapeworm, took on Sept. 1st, 1910, at 5.45 A.M., capsules containing 6 grammes of ethereal extract of male fern and 0·12 gramme of calomel. At 7.15 he suffered from colic and passed a normal stool. A quarter of an hour later an attack of diarrhœa, lasting 25 minutes, began, and a complete tapeworm was evacuated. Vertigo and nausea followed, but ceased when he returned to bed. At 10 o'clock he noticed that his conjunctivæ and skin were yellow, and at 12 that the urine was "brownish." On the following day he came under observation with manifest icterus of the face and subicterus of the trunk and limbs. The pulse was normal and not slowed. The urine was turbid and contained urates in abundance and a trace of albumin. The reactions for biliary pigments and salts were negative. The tongue was furred, but the appetite was preserved. On Sept. 3rd the pulse was 68, the splenic dulness measured 6 by 6 centimetres, the liver was normal, the tongue was clean, and the stools were normal. The red corpuscles numbered 4,146,000 and the hæmoglobin amounted to 75 per cent. The red blood corpuscles in general were little deformed, but several were punctated, and there was some corpuscular débris. On Sept. 5th jaundice was no longer distinguishable in the skin, but the conjunctivæ were subicteric. The red corpuscles numbered 5,176,000. During examination they rapidly altered. On Sept. 15th the red corpuscles were normal in every way. In April, 1911, the subicteric tint of the conjunctivæ still persisted. In another case, communicated by M. de Gaulejac, a healthy man, aged 30 years, took 8 grammes of ethereal extract of male fern with 1·2 grammes of calomel for tapeworm. The extract was taken in capsules containing half a gramme, two every 10 minutes, and the calomel in doses of 0·30 gramme every quarter of an hour, simultaneously with the extract. Four hours after the taking of the first dose of the extract jaundice suddenly appeared, accompanied by great weakness. On the following day the liver was tender, but not enlarged. There was violent headache for three or four days, and incapacity for work for 10 or 12 days followed. The jaundice lasted three weeks and the general weakness for more than a month. After the disappearance of the jaundice a discolouration of the mucous membrane remained until the patient recovered his strength. In this case the blood was not examined, but anæmia was observed clinically. It must be noted that in the first case the blood was not examined until 48 hours after the beginning of intoxication, and probably was already in process of restoration. The jaundice appears to be due to the action of filicic acid, alone or in combination with the essential oil contained in male fern. It is curious that in the first case, while the extract appeared to have no immediate action on the liver, that organ was subsequently affected, for the subicteric tinge of the conjunctivæ persisted. Although in these cases the hæmolysis takes place principally in the blood, perhaps the liver plays a secondary part. This view is borne out by the experiments of Van Aubel,[1] who produced cirrhosis of the liver by repeated administration of filicic acid to dogs. The cases reported above show that male fern produces jaundice in the same way as other intoxicants, such as chloroform, essence of turpentine, pyrogallic acid, and toluylenediamine.

[1] Letters of R. L. Stevenson, edited by Sidney Colvin, 1911, vol. iii., p. 11.

[1] Bulletin de l'Académie de Médecine de Belgique, 1895, p. 654.

ROYAL SOCIETY OF MEDICINE: PROPOSED SECTION OF PSYCHIATRY.

THE council of the society having decided that it is advisable to form a Section of Psychiatry, a meeting of Fellows and others interested in the subject was held at the temporary premises of the society, 15, Cavendish-square, W., on March 27th, to discuss the proposal. The President of the society, Sir Henry Morris, Bart., was in the chair, and the following motion was unanimously adopted:—

That this meeting of Fellows and others interested in psychiatry welcomes the resolution of the council of the Royal Society of Medicine that a Section of Psychiatry be formed, and desires at once to take the necessary preliminary steps for the establishment of this section.

For the furtherance of this project a subcommittee of Fellows was formed, consisting of Sir George H. Savage, Dr. F. W. Mott, Dr. R. Percy Smith, with Dr. R. H. Cole acting as honorary secretary, to arrange preliminaries and to convene a meeting early in June to elect the officers and council of the section.

CHRONIC PARALDEHYDISM.

WHAT is a "safe hypnotic"? We should imagine that any hypnotic which neither threatens interference with vital functions nor exposes the patient to the risk of falling beneath the mastery of a drug habit might be regarded as "safe." But is there such a drug? The medical man feels justified in prescribing paraldehyde in many a case where he would not trust the patient with a less nauseous substance. The extremely unpleasant taste is regarded as a sure barrier to habitual abuse; perhaps with too much confidence, as the case recorded by Dr. W. Hartz in the *Journal of the American Medical Association* of March 2nd, 1912, seems to suggest. The victim was a man aged 47, a salesman, whose complaint was inability to sleep. His family history disclosed a leaning to insanity, but he himself had never suffered from mental disease, and he was not intemperate except in the use of tobacco. After many years of insomnia he was treated in a hospital with 1-drachm doses of paraldehyde. Four weeks of this treatment enabled him to sleep, and he abstained from paraldehyde for three years. After this period he began again, at first with doses of 1 drachm, but during the year following the amount had to be increased to produce a hypnotic effect till he was taking an average of 2 oz. daily. Each of these doses induced a sense of intoxication, followed by a contented state in which he felt exhilarated and enjoyed a series of pleasant ideas and recollections. Sleep was usually secured by a dose of from 6 drachms to 1 oz. The principal objective evidences of this habit were constant restlessness, a marked tremor affecting the fingers, lips, tongue, and facial muscles, and habitual sleeplessness. He had aged beyond his years, the face and hands were cyanosed, and the complexion was that of an alcoholic, though by careful inquiry the drink habit was excluded. Powerful hypnotic draughts,

for instance, a combination of 25 grains of sodium bromide with 15 grains of chloral hydrate and 1-100th of a grain of hyoscine hydrobromide, repeated thrice during the night, failed to induce continuous sleep, and he was discharged from the hospital unrelieved. There are only a few cases of chronic paraldehydism on record, but it appears that the individual whose craving is so strong as to overcome his natural repulsion for the taste of the drug has to be reckoned with, so that caution is necessary in the prescribing of paraldehyde, as it is with all hypnotics.

OSMOTIC PRESSURE AND ITS PHYSIOLOGICAL BEARING.

IN a paper on the above subject by Mr. R. R. Bennett and Mr. F. W. Gamble, read at the March evening meeting of the Pharmaceutical Society in London, comment was made upon the fact that hitherto the isotonicity of a solution had been considered of importance only when the solution was intended for injection directly into the circulation or into the tissues of the body. The authors suggested that the principle might with advantage be extended to solutions intended for application to wounds, both superficial and deep, and that isotonic solutions were desirable in all cases where the surface had been deprived of its epithelium and the underlying tissues were laid bare. Since the tissues are normally bathed in lymph any liquid that is applied to such surfaces should be so constituted as to avoid all harmful osmotic action. This precaution would, in the opinion of the authors, favour normal processes and hasten healing. Hypertonic local applications would be, of course, an advantage when the conditions require an increased lymph circulation at the seat of disease, as in the case of many chronic ulcerations.

HOUSING CONDITIONS IN WALES.

FROM the reports of medical officers of health and from other sources it is apparent that the Housing Regulations, 1910, are bringing to light in Wales a large number of insanitary and uninhabitable dwelling houses. Of 30 houses inspected in the Tregaron rural district the majority were seen to have damp walls and insufficient ventilation, while overcrowding was frequently found to exist. In one house a family of six persons slept on the ground floor where there was a total air space of only 700 cubic feet. In another house five persons slept in a room in which the window did not open and where the air space was only 600 cubic feet. In the Wrexham rural district there appears to be a great scarcity of cottages, so that difficulties arise in connexion with the closing or repair of those which are defective. Out of 48 houses reported upon to the council in January, 47 were found to be defective and two were so dilapidated as to be uninhabitable. At Lampeter the same conditions exist, and the medical officer of health, Dr. E. C. Davies, in his annual report states that those who are living in the neglected houses are suffering in health although neither the owners nor tenants are prepared for extensive reforms, and if closing orders were enforced some of the occupants would be rendered homeless. At a recent Local Government Board inquiry in the Pontardawe rural district Mr. W. J. Lewis, the medical officer of health, stated that in one locality, Ystalyfera, 71 houses had been condemned, of which number 26 were quite uninhabitable. House rents in this district have risen in 10 years from 10*s.* or 12*s.* per month for houses with only two bedrooms to £1 and 25*s.* per month. The district council proposes building 28 houses to be let at a monthly rental of 24*s.*, a sum which it is anticipated will cover the whole cost of the undertaking. At Ystradgynlais in Brecknshire it has been decided to close as uninhabitable a row of 18 houses which were reported to have no back yards or sanitary conveniences and which are in a dilapidated condition. Here, too, there is a lack of empty houses for the displaced tenants to move into.

THE TREATMENT OF TRIGEMINAL NEURALGIA.

WE published a few weeks ago a paper by Dr. Wilfred Harris[1] on the treatment of trigeminal neuralgia by the injection of alcohol into the Gasserian ganglion. This procedure aims at the prevention of regeneration of nerve fibres which has been found to occur when only the nerve trunk has been destroyed by the injection of alcohol, the downward growth of new nerve fibrils to replace those destroyed by the alcohol being started from nerve cells in the Gasserian ganglion. The destruction of this ganglion by the injection of alcohol saves the patient from the Krause-Hartley operation, with its attendant risks, without subjecting him to the relapses which follow the more peripheral injections of alcohol. A recent paper by Professor Dollinger in *Deutsche Medizinische Wochenschrift* gives a good and critical review of the various surgical forms of treatment of trigeminal neuralgia. Resection of 21 branches of the trigeminal nerve in 14 of Professor Dollinger's patients was followed by relapse in all but one case. Subsequently the Gasserian ganglion was extirpated in 22 cases, the operation having to be abandoned in two other cases on account of severe hæmorrhage. Twenty-one patients were permanently cured and one who exhibited cerebral symptoms died. As the operation usually involves the cavernous sinus and thus causes severe hæmorrhage Professor Dollinger prefers leaving the Gasserian ganglion *in situ*, and instead he extirpates the root of the trigeminal nerve which is drawn from under the tentorium cerebelli. This modified operation which he has performed in three cases is less obscured by hæmorrhage, but it is still a very serious undertaking. Since 1909 Professor Dollinger has adopted Schloesser's treatment by injections of alcohol into the nerve trunks, 43 patients being thus treated for severe trigeminal neuralgia. In most cases the pain returned in a few months, but in a milder form than before. It also disappeared again on repetition of the injection. In some cases the pain was absent for more than a year, and it is possible that in some of these the cure may prove to be permanent. Compared with the peripheral resection of the trigeminal nerve the injection of its main trunks is preferable, for though relapses follow both methods the latter is by far the easier of the two, and for the past two years Professor Dollinger has adopted this method in preference to resection of the Gasserian ganglion. He considers, however, that this radical operation may be advisable for patients whose circumstances prevent their attendance at hospital for the re-injections which the relapses after Schloesser's method so often necessitate. The chemical resection of the Gasserian ganglion itself by the method described by Dr. Harris appears to prevent these relapses, and thus to remove the last argument in favour of the Krause-Hartley operation. But whatever treatment is the best it is necessary, as Professor Dollinger points out, at the outset to be sure of the diagnosis. The careful examination of the mouth, for example, may reveal the presence of a carious stump the removal of which may effect an immediate and permanent recovery.

Sir David Gill, K.C.B., F.R.S., has succeeded Lord Cromer as President of the Research Defence Society; and Lord Cromer, the Right Hon. A. J. Balfour, Sir Edward Elgar, O.M., Mr. Rudyard Kipling, and Lord Rayleigh, O.M., have become Vice-Presidents of the society.

[1] THE LANCET, Jan. 27th, 1912, p. 218.

TELEGRAPHISTS' CRAMP.

AN EXTRACT FROM THE REPORT OF THE DEPARTMENTAL COMMITTEE, GENERAL POST OFFICE, ON THE SUBJECT WITH ADDITIONAL MATTER.

BY H. THEODORE THOMPSON, M.D. CANTAB., F.R.C.P. LOND., F.R.C.S. ENG.,
ASSISTANT PHYSICIAN, LONDON HOSPITAL;
AND
J. SINCLAIR, M.D. DURH., M.R.C.P. LOND.,
SECOND MEDICAL OFFICER, GENERAL POST OFFICE.
(*The Medical Subcommittee.*)

PART II.[1]

Remarks Arising from the Investigation.

IN every office there are some telegraphists who make complaint of having difficulty in the performance of their duty at the Morse key. It is possible to divide these cases of disability into three classes: (1) disability the result of true cramp; (2) disability the result of fatigue; (3) disability arising from nervousness of temperament, self-consciousness, working at too high speed when first placed on circuit, and general unsuitability for telegraphic work.

1. *Disability the Result of True Cramp.*

Cases of this character present certain definite symptoms and signs. Pain, aching, or stiffness, or a combination of all, is felt in the operating arm, which pain may be variable in position but is constant in its time of appearance, occurring as soon as, or within a short period after, the operator begins to key, before any fatigue is possible. In the more advanced form of the disease visible spasm of fingers, wrist, or arm, or of a combination of two or more of these parts, is present.

If the symptoms, which may be regarded as a warning, are neglected, if work at the Morse key is persisted in, the feeling of pain, aching, and stiffness may be followed sooner or later by some loss of the power of free manipulation. The operator finds a difficulty in signalling some particular letter or letters. This mal-coördination becomes persistent, and it cannot be avoided by voluntary effort unless the rapidity of the manipulation be greatly reduced. The mal-coördination sometimes affects the extensor muscles alone, sometimes only the contractions of the flexor muscles are altered, but most commonly both. We find that the feeling of discomfort generally affects the extensor aspect of the forearm first. The fingers may next feel a little cramp, but since their position may be varied considerably they are not prominently affected.

The onset of the malady may be sudden. We have examined a telegraphist who told us that, after a heavy spell of work on the Morse key, he suddenly felt "something go wrong" with his right hand, that almost complete disability for signalling followed at once, and that there had been no recovery. This telegraphist is a strong, able-bodied man, and his style of sending is good; his manipulation of the key with the right hand is interfered with at once by spasm, and the slip shows great irregularity. He performs his duty with the left hand.

We may here quote from Dr. Fulton's[2] description of signs displayed by cramp subjects, with which we concur:—

> The knob of the key, instead of being loosely encircled by the fingers, is seized firmly; the spasm of the opposing muscles increases; and the movement is gradually transferred from the wrist to the elbow as the higher flexors and extensors come to replace those which are disabled below. If the manipulation be persisted in the spasm spreads further and further up the limb, and every muscle that attempts the movement is rapidly affected. The elbow, acutely flexed, is adducted, elevated, and carried forwards; and the operator, instead of facing the instrument, sits sideways, with his right shoulder bent over the key. The movement is now almost limited to the shoulder-joint; the whole arm makes exaggerated movements; the key, instead of receiving a tap, gets a heavy blow; and thus the manipulation, instead of being nimble and easy, becomes slow, laborious, and painful.

The following account of a bad case is given by Dr. Fulton:—

> This operator, who had suffered for years, found it necessary to flex the right thigh, and, grasping the edge of the table with his left hand, twisted himself over the instrument in an attitude eminently ludicrous. Each thump was accompanied by a lurch forward of the head and back, and so closely were his mind and energies involved that he could only articulate Yes or No in reply to a question. If he had to utter a sentence he had to stop his manipulation.

We have seen cases presenting exactly similar signs.

Officers suffering from cramp may continue working at the instrument for years (1) by working more or less slowly; (2) by relieving the work of the right hand by the use of the left; (3) by varying their method of manipulation of the key; (4) by supporting the elbow; or (5) by holding a small object, such as a pencil, between the fingers. One of the most striking features of our inquiry is that a telegraphist may continue to do work that will pass muster in spite of very severe cramp. The receiving telegraphist will be able to understand the "sounder," although the sender may be writhing in contortions as he sends, and his slip will be almost illegible. In many cases cramp is confined to the right hand, the telegraphist being able to use the left hand for months or years, but in many cases the left hand becomes affected eventually.

The pain, or spasm, or both combined, never disappear or grow less if the work of the right hand is persisted in. The condition tends to grow worse. In addition, besides spreading to other limbs, the spasm may spread to other actions, and the power to perform acts of a less fine character may be impaired or lost—the power to hold a pen, to button clothing, to lace boots, to use a knife and fork, a needle, a razor, a walking-stick—specimens of all these disabilities have been met with.

It is probable that only an extremely small proportion are totally disabled from Morse sending. The incidence of the affection among telegraphists generally appears to be no more than that of writers' cramp among copyists, and the two conditions are strictly comparable. Cramp may affect any Morse telegraphist; it is not necessary to be of a neurasthenic temperament or of poor physique to fall a victim to it, though its incidence is more likely to fall on people of poor or impaired health, of poor physique, or of nervous temperament.

In making a diagnosis we are of opinion that it is necessary firstly to be satisfied that the complainant is a qualified telegraphist (that is, that he has passed the stage of tuition and has taken duty at a circuit), next that there is an absence of local disease. The pronouncement of the Home Office Committee indicates that, for the purposes of legislation, the malady which should be viewed as cramp is that in which there is an absence of local abnormalities. "Telegraphists' cramp might be confused with temporary or permanent reduction of manipulative skill, or local muscular weakness, with neuritis and other nervous disorders, and even with rheumatism."

We feel that we cannot do better at this point than quote in full the portion of Dr. Fulton's paper which describes the Morse instrument and the physiology of the movements attaching to the work of the operator.

The Morse.—This is the common instrument. ..... The transmitting part, called the "key," consists essentially of a lever moving on a hinge fulcrum. The proximal arm is surmounted by a knob, and is kept elevated by a spring which depresses the distal arm. The manipulation consists in a succession of depressions of the proximal arm against the resistance of the spring. The range of movement of the key varies from about $\frac{1}{12}$ to $\frac{1}{4}$, or even $\frac{1}{2}$ of an inch, and the resistance of the spring varies from two to four ounces.[3] The thumb, index, and middle fingers of the right hand are applied somewhat loosely to the knob, and are held more or less rigid in a position of flexion and opposition; but they may be varied a little. The movement is one of flexion and extension, and takes place chiefly at the wrist, but slightly at the elbow, and in part also at the metacarpo phalangeal joints of the index and medius; these fingers being slightly raised from the knob between each group of contractions which form a letter. The muscles called into play in the upward movement are the extensors of the carpus and of the digits, particularly that part of the common extensor which commands the index and medius, and the special extensor of the index. The extensors of the thumb are also involved. The downward movement is produced by the flexors of the carpus and of the digits, especially those portions of the common flexors which act on the index and medius. And, further, since these fingers and the thumb are maintained in a position of flexion and opposition, there is slight, constant, but variable contraction of the adductor, opponens, and flexores pollicis, of the carpal extensors and of the flexors of the digits mentioned. It is probable that the interossei and lumbricales are also brought into operation. The triceps and the flexors of the forearm are also implicated.

Each depression of the key establishes an electric current, which, flowing along the wire to the receiving instrument, passes into a coil

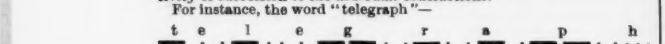
[1] Part I. was published in THE LANCET of March 30th, 1912, p. 888.
[2] See Historical Section.

[3] *Note.*—With double-current keys the play now given is $\frac{1}{12}$ of an inch, and less than that with single-current keys. The spring resistance varies at present from 4 to 10 ounces. The Committee have suggested a standard range of spring resistance.

enclosing a soft iron core, which, therefore, is transformed into a magnet so long as the current continues. Suspended on a hinge above the coil is a horizontal lever, the proximal end of which bears an armature which is pulled down every time the core is magnetised, and is elevated in the intervals by a spring. The distal arm carries a thin revolving wheel, and this wheel, while partially immersed in an "ink-well" below, comes into relation above with a strip of paper kept moving at a definite rate by means of clockwork. Thus, it will be observed that the transmitting lever and the recording lever move synchronously and in unison. Each time the key is depressed the core is magnetised, and the ink-wheel, pressing against the running slip, produces a linear mark whose length is equal to the duration of the depression of the key, and, therefore, to the duration of the flexor contraction. Similarly, the length of the interruptions between the linear marks represents the duration of the elevation of the key—that is, of the extensor contractions. Hence it follows that the recording slip presents us with an accurate myographic picture of the number, kind, duration, and relativity of succession of the muscular contractions.

For instance, the word "telegraph"—

t e l e g r a p h



requires 15 short and eight long flexor contractions, and 14 short and nine[4] long extensor contractions, in an order represented above. The alphabet of the Morse language is . . . . . made up of two types of flexor and three types of extensor contractions. . . . .

The limitation of the range of movement, the great number of the contractions, their rapidity, difference of duration, and variability of succession, constitute the important and differential features of the Morse manipulation. When the contractions are properly coördinated we get what may be called the normal Morse language. The three annexed photographs show normal Morse signals and two of the variations which occur in cramp subjects. The same sentence has been repeated in each specimen. The sentence runs: "The arm should be held out free from the body, the forearm and back of the hand being practically level or nearly so when placed on the key." Owing to exigencies of space a few unimportant signals at the edges of the illustrations have been mutilated.

A recent experiment by ourselves, based on an average of 20 words a minute, is described in the following paragraph.

Assuming that a telegraphist works at the rate of 20 words, each of five letters, in a minute (an average rate of transmission), it is found by experiment, taking the dot as the unit and the number of contractions required to key the word "telegraph" as a basis for the relative proportion of dots to dashes, that the number of contractions per minute and the time occupied in each contraction is as follows:—

Flexor contractions	Short	165,	each lasting	0·06 per second.
	Long	88	,,	0·2 ,,
Extensor contractions	Short	154,	each lasting	0·06 per second.
	Long	88	,,	0·2 ,,
	Longer	20	,,	0·3 ,,

Thus in one minute there are 253 flexor contractions and 262 extensor contractions; that is to say, 515 different muscular contractions must occur in one minute when sending on Morse at the rate of 20 words a minute.

Of course, this rate does not continue, periods of rest from telegraphing intervening between the active muscular movements. Below is a comparative statement of the movements made per minute by typists and telegraphists respectively, which has been worked out independently by Mr. Purves, a member of the committee. From this it will be seen that a telegraphist on the Morse instrument makes more than twice as many movements per minute as a typist.

Comparative Statement of the Number of Movements made per Minute by Typists and Telegraphists.

—	Typists.				Telegraphists.			
	Words per minute.	Movements per minute.			Words per minute.	Movements per minute (approximate).		
		Flexor contractions.	Extensor contractions.	Total.		Flexor contractions.	Extensor contractions.	Total.
Speed work of good operator...	50	250	250	500	40	510	510	1020
Sustained work of good operator...	35	175	175	350	30	383	383	766
Sustained work of average operator	25	125	125	250	20	255	256	510

[4] Eight long contractions for the spaces between letters and a still longer one for the word space.

Cause of Telegraphists' Cramp.

Cramp is the result of a weakening or breakdown in the central controlling mechanism of the brain, resulting in spasm and incoördination of muscles which perform the specific act of telegraphy.

It is possible for telegraphists to suffer from cramp as a result of working on any telegraphic instrument. In the United Kingdom the Morse key is the common instrument used, and the vast majority of cases of cramp are found in telegraphists working on this key. It has been shown that the use of this key requires a very large number of muscular contractions with a very limited range of movement and character. It is possible that these facts may influence the occurrence of cramp in workers on the Morse key. However, in Germany cases of cramp on the Hughes instrument seem not uncommon. It is probable from our knowledge of craft neuroses in general that the malady may arise during work on any instrument, but there seems ground for thinking that Morse working may specially predispose to cramp for the reasons stated above.

The conclusion that the central nervous mechanism is at fault has been reached as the result of our examination of a large number of cases of cramp. The muscles of the telegraphists affected were perfectly healthy, and gave the normal reactions to electrical stimulation. Sensibility of the skin and deeper structures of the hands was quite normal. No symptoms or signs pointed to an affection of the nerves, or of the arms or hands. Thus, by a process of exclusion, we conclude that the central nervous mechanism must be at fault.

To the view that the central nervous mechanism is at fault an objection has been raised because of the undoubted fact that the subject of cramp complains of pain in the affected arm at an early stage of the disease. It has, therefore, been argued that the origin of the disease must be a local one. As far as our investigations carry us, we find that there is no change whatever in the state of the skin; and the pain complained of always seemed to us to be situated in the muscles and not in the skin itself. It must be remembered that the muscles are structures containing sensory nerves; and over-action, strain, ill-balanced movements, or spasm will stimulate these sensory nerves, and pain will be experienced which will be referred to the muscles affected. We consider that the origin of the disease is a weakening of, or a breakdown in, the controlling mechanism in the brain, and this breakdown results in over-action and incoördination of the muscles which are used in the particular act of telegraphy, and that it is these irregular strains in the muscles which are the cause of the pain experienced by the cramp subject in his hand and arm.

The fact that the malady is apt to attack the left hand if persistently used after the right hand has become affected, and that it may spread to other limbs, and in aggravated cases to other actions, is also a strong argument in favour of the disorder being of central origin.

This breakdown in the central controlling mechanism of the brain is essentially different from muscular fatigue. The latter may affect a perfectly healthy telegraphist, and supervenes upon a prolonged period of work. After a night's rest, however, all pain and stiffness will have disappeared, and the telegraphist is able to perform his ordinary duty without any trouble on the following day.

In the subject of cramp, however, the disability is often experienced as soon as the key is touched—i.e., long before any fatigue of the muscles could have developed. At the same time we consider that muscular fatigue, when endured over long periods, is an important provocative cause of the central breakdown. A nervous disposition, outside worry, and sudden extra strain may also be other factors which may induce the onset of telegraphists' cramp. The constitutional state of the operator must be taken into consideration equally with the act of telegraphy as a cause of cramp; the first may be regarded as the predisposing cause, and the second as the exciting cause of the condition.

2. *Disability the Result of Fatigue.*

Cases of this character were met with in this inquiry. These must be differentiated carefully from those of disability due to cramp. The cases of disability arising from fatigue may be divided into two classes: (1) fatigue without local aggravating causes; and (2) fatigue with local aggravating causes.

FIG. 1.

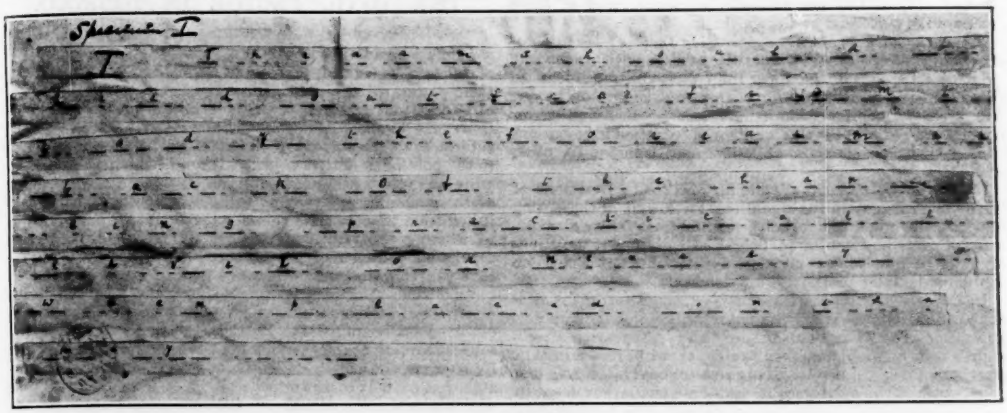


FIG 2.

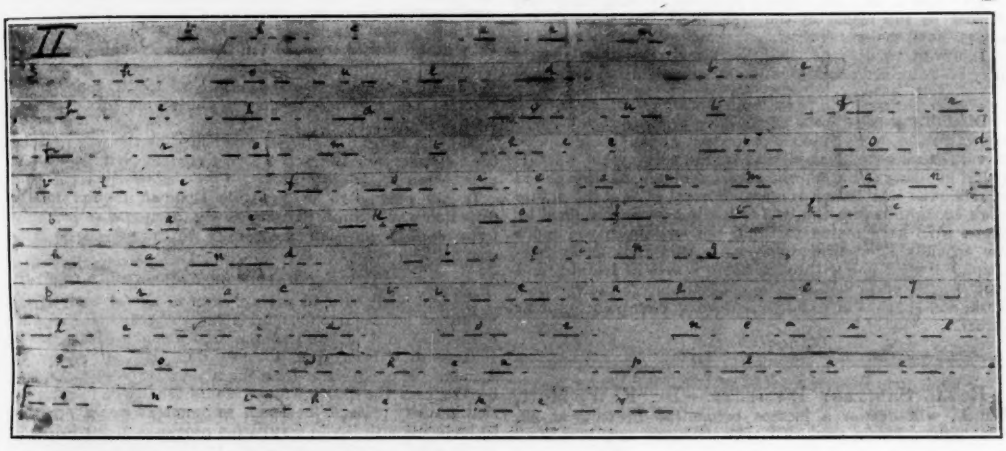
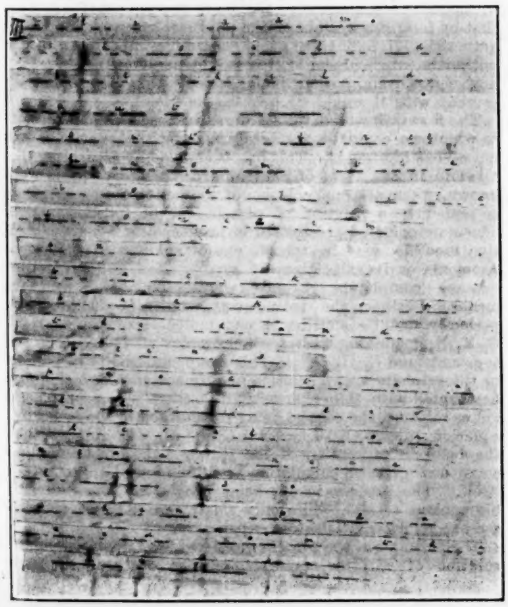


FIG. 3.



Specimen 1 is an example of good average hand-sending. The characters are not mechanically perfect, but the dots and dashes are well defined and the spacing is regular. The translation of each letter is shown above the corresponding Morse characters for convenience of interpretation.

Specimen 2 shows loss of control in sending a succession of dots and difficulty in the inhibition of the short flexor contractions. Note the excessive number of dots in the letters h, b, d (line 7), and c (line 8), and how in some cases the dots are almost equal in length to the dashes.

Specimen 3 shows loss of control in the inhibition of the long flexor contractions. The slip is fairly good, except where there is evidence of spasm, as after the first "out," in the first "back," and in "practically," and in several cases a second attempt had to be made before a word could be signalled properly. The striking feature is the great length of the "dashes" due to spasm during the long flexor contractions.

1. *Fatigue without local aggravating causes.*—(*a*) Of the healthy; (*b*) of the neurasthenic, alcoholic, and of those temporarily weakened by ill-health.

2. *Fatigue with local aggravating causes:*—(*a*) *Local personal causes.*—Brachial neuritis, tenosynovitis, rheumatic or gouty affections of the upper limb, ganglions, accidents to the arm with resulting weakness or impairment of power, bad style of manipulation (the result of bad tuition or acquirement of a bad style), or want of practice from various causes such as changes of duty and transfer to other branches.

(*b*) *Mechanical causes.*—Faults in keys (bad adjustment of the amount of play in the signalling lever and of the spring tension), the holding of pencils, manifolding, faulty arrangement of seats and tables in height, alleged faulty positions of keys in quadruplex circuits, insufficiency of space on tables, and faulty position of keys on table.

In the case of fatigue without aggravating causes, the armache which follows is of temporary or occasional character, appearing after some hours of duty and disappearing after a night's rest, or with improved health, or with return of skill after practice; if, however, aggravating causes exist, disappearance of the symptoms follows only on improvement in the local disease of the muscles or nerves, or on correction of the manipulative or mechanical faults. The fatigue in these cases is of local origin; jerkiness or illegibility may appear as the result of the conditions, but these do not appear until the arm is tired.

In any given case personal, local, and mechanical causes may be combined as aggravating causes producing fatigue.

3. *Disability from Nervousness, &c.*

Disability arising from nervousness of temperament, self-consciousness, work at too high a speed when first placed on circuit, and general unsuitability for telegraphic work is found in young operators when first entering upon their period of service as established workers. Several cases of this nature were brought before the committee and were examined by them. We have reason to think that certain shaped hands are unsuitable for telegraphic work, and that many telegraphists, after going through their period of learning and their period of probation, are not suitable for telegraphic work, and are thus more liable to develop cramp during their career.

(To be concluded.)

ROYAL SANITARY INSTITUTE.—Dr. F. W. Mott, F.R.S., will deliver a lecture before the institute at 90, Buckingham Palace-road, S.W., on "Sanity and Insanity" on Wednesday, April 24th, at 5 30 P.M. The Duke of Northumberland, the President, will take the chair.

ROYAL MICROSCOPICAL SOCIETY.—At a meeting held on March 20th, with Mr. Edward Heron-Allen, Vice-President, in the chair, Mr. C. F. Rousselet described a Lieberkühn Microscope which had been presented by Mr. Alpheus Smith. Lieberkühn devised this form of microscope about 1738; it was intended principally for viewing opaque objects which were illuminated by a silver concave speculum, in the centre of which was mounted a bi-convex lens. The combination of a lens and reflector was invented by Descartes in 1637, but it remained for Lieberkühn to apply it in a convenient and serviceable form. The reflector is known as a "Lieberkühn," and is used at the present day. Mr. Rousselet also described two old Microscopes lent for exhibition by Mr. T. H. Court. Mr. Conrad Beck exhibited a Lens termed the "Focostat lens." It was attached to a needle or scalpel for dissecting purposes, and having been adjusted to the focus required, work could be carried on without further adjustment. It could also be used in removing foreign bodies from culture tubes. Mr. E. J. Sheppard exhibited two slides. The first was a vertical section through the four upper incisors of a kitten about six days before birth, the section passing through nearly an equal plane in each tooth. The second slide showed the second maturation division in the ovum of a mouse prior to its leaving the ovary. Mr. Rousselet then described Four Rotifera from the Devil's Lake, a large brackish-water lake in North Dakota. Mr. F. Enock gave a lecture on Fairy Flies (Mymaridæ) and their Hosts, illustrated by many beautiful slides, including a series of photo-micrographs illustrating the life-history of the fly.

THE TOXIC FACTOR IN TOBACCO.

IT must be admitted that in spite of the large quantities of tobacco consumed, in spite of its widespread use and the toxic powers of the plant, serious poisonings by tobacco are of exceptional occurrence. This is all the more remarkable if we are to accept the statements in the literature on the subject as to the amount of nicotine present in the leaf and to the poisonous action of this alkaloid, which is said to be quite as rapid as that of hydrocyanic acid. A recent review of the numerous analyses of tobacco which have been published from time to time raises some doubt in our minds as to whether the results given correctly represent the actual alkaloidal contents of the tobacco, and even if we assume that the true amount of nicotine in tobacco is given, it is quite obvious that there is expressed only the toxic estimation of tobacco in terms of nicotine, and not that of the smoke obtained on combustion. Further, the methods of smoking tobacco are, of course, different, as is seen in the three chief forms of it, the cigar, cigarette, and pipe, and it is conceivable that each of these methods produces a smoke of its own which possesses modified or different properties. It has occurred to us, therefore, that investigation might usefully be pursued on fresh lines, indicated in the following questions:—

Firstly, Are the analytical methods hitherto used in estimating the amount of nicotine in tobacco-leaf trustworthy?

Secondly, What is the relationship of the true amount of nicotine in any tobacco to that in the smoke produced from that tobacco?

Thirdly, Is this relationship modified by the way in which the tobacco is smoked in the forms commonly in vogue—the pipe, cigarette, and cigar?

It has seemed to us probable that an inquiry in this direction would throw light upon the comparative immunity from serious nicotine poisoning which tobacco-smoking communities enjoy.

THE ESTIMATION OF NICOTINE.

We feel fairly safe in saying, after a careful study of the published communications upon the subject, that the chief obstacle against arriving at the true amount of nicotine in tobacco has been due to the difficulty of separating ammoniacal compounds from the alkaloidal base, and if that be the case the nicotine found would usually be in excess of that actually present, inasmuch as ammonia would probably be included with it. In distillation processes in particular, in which alkali is used to set free the nicotine, a considerable amount of ammonia is evolved by the action of the alkali on nitrogenous compounds. We have found, at all events, that by following certain of the processes given by analytical authorities it is difficult to avoid contamination of the nicotine with ammonia, and as nicotine is commonly estimated on its acid-neutralising power, it is evident that any ammonia present with it would be counted as nicotine.

The first task which we set ourselves was to find a process in which we could be absolutely assured that ammonia was not a vitiating factor. This has been done by separating the alkaloid in the form of an iodine compound. As is well known, when a strong solution of iodine in potassium iodide is added to a solution of nicotine or of its salts a rich chocolate-coloured precipitate is produced, and the whole of the nicotine may be thrown out of solution in this way. Ammonia or its salts gives no precipitation, and so nicotine can be completely separated from ammonia by this means. Further, the iodine compound of nicotine is a perfectly definite substance, one molecule of the alkaloid $C_{10}H_{14}N_2$ combining with four molecules of iodine to form the compound $C_{10}H_{14}N_2I_8$. This compound yields its iodine to thiosulphate, and a solution of it in acetone or alcohol can be titrated with thiosulphate in the same way as ordinary iodine solution, the change being represented in the following equation: $2Na_2S_2O_3+I_2=2NaI+Na_2S_4O_6$. It follows that the accurate estimation of the iodine in the nicotine-iodine compound gives on calculation an estimation of the alkaloid itself. The process in our hands has given accurate and harmonious results, while only small quantities of tobacco are needed for a satisfactory experiment.

The principle of the process was first tested upon a standard solution of nicotine containing 1 per cent. of the pure

alkaloid. To give an example, 5 c.c. of this solution (=0·05 gramme nicotine) were taken and a good excess of iodine solution (iodine dissolved in potassic iodide solution) was added. By means of a rotatory movement, a kind of centrifugal shake by the hand, the nicotine-iodine formed may be made to mat together in a lustrous oily mass, leaving the solution clean and bright. It is then filtered through asbestos wool, using a filter pump for the purpose. The precipitate is rapidly washed with cold water and afterwards dissolved in acetone. The acetone solution is then titrated with N/10 thiosulphate solution in the ordinary way, using a little starch paste near the end of the titration. The number of cubic centimetres of thiosulphate solution used multiplied by 0·002 gives the quantity of nicotine. This factor is based upon the compound of nicotine containing 4 molecules of iodine (total molecular weight 1016) and 1 molecule of nicotine (molecular weight 162), and 1 c.c. of N/10 iodine = 0·0127 gramme iodine. In the example quoted 5 c.c. of a 1 per cent. standard solution of nicotine gave an iodine compound which, after washing and dissolving in acetone, required 25·3 c.c. of N/10 thiosulphate solution to discharge all colour = 0·0506 nicotine found, against 0·05 gramme the quantity calculated. It will be observed that the process is accurate with very small amounts of nicotine. In another example some ammonia was added to the nicotine solution, and the result was still an accurate one, 0·0503 being found in 0·05 gramme of nicotine taken.

Next, in order to imitate as far as possible certain factors in tobacco which might impair the accuracy of the process, tobacco showing, of course, a very complex composition, 5 c.c. of a 1 per cent. solution of nicotine was allowed to be absorbed by a mixture containing sawdust and oil and a small quantity of ammonium salt (chloride). About 10 grammes of lead oxide was added with some water to make the mass in a pasty condition. 50 c.c. of benzene was next added, and the whole was placed in a conical flask immersed in just boiling water. A reflux condenser attached to the flask served to return the volatilised benzene back to the flask. The mass was thus boiled with benzene for one hour. The benzene after cooling was next poured into a filter, the residue being washed once or twice with benzene. The total benzene collection was then neutralised with N/10 sulphuric acid, the amount of acid required for this being noted. A distinct excess of sulphuric acid was then added and the acid fluid separated from the benzene. To the separated acid fluid a strong solution of iodine in potassium iodide was added in excess, the precipitate was separated, collected, and washed, as previously described. It was next dissolved in acetone, and the solution was then titrated with N/10 thiosulphate. In the example quoted, in which 5 c.c. of a 1 per cent. solution of nicotine (= 0·05 gramme nicotine) was absorbed in sawdust containing oil and ammonia, the iodine precipitate dissolved in acetone required 27·5 c.c. of N/10 thiosulphate of soda, and 27·5 × 0·002 gives the product 0·055 for the calculated figure 0·050 gramme of nicotine.

NICOTINE IN TOBACCO.

The process was next applied to the analysis of the cigar, cigarette, and smoking mixture, about 5 grammes being employed for this purpose, and the results in Column 1 in the following table show the variations which occur in the nicotine of the tobaccos consumed by the public to-day :—

APPARATUS EMPLOYED FOR EXAMINING THE SMOKE OF PIPE, CIGAR, AND CIGARETTE.

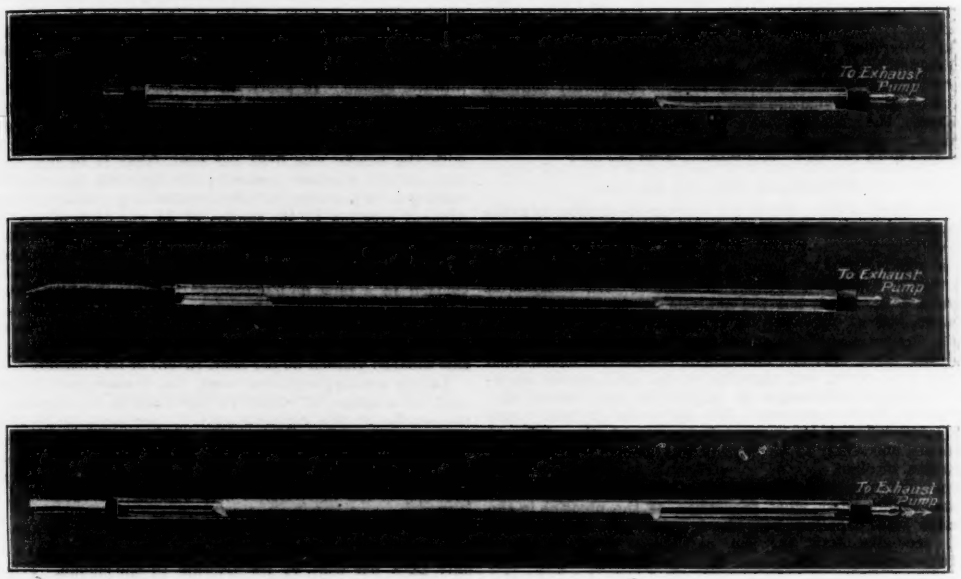


Table giving Experimental Results.

Description.	Nicotine in tobacco (1).	Nicotine in smoke (pipe) (2).	Nicotine in smoke (cigarettes) (3).	Alkalinity in terms of ammonia (NH_3) (4).
Cigarettes (1) (Virginian) ...	1·40	0·74	0·12	0·07 (cigarette). 0·42 (pipe).
,, (2) (,,) ...	1·60	0·60	0·06	0·05 (cigarette) —
Caporal tobacco	2·60	2·20	0·95	0·25 (cigaret 0·90 (pipe).
Caporal (non-nicotine)... ...	0·60	0·48	0·39	0·05 (cigarette). 0·86 (pipe).
Cigarette (Turkish)	1·38	—	0·51	0·06 (cigarette).
,, (Egyptian)	1·74	—	0·21	0·15 (cigarette). —
Smoking mixture (1)	2·85	2·20	2·25	1·50 (pipe).
,, ,, (2)	2·81	1·53	—	0·60 (pipe).
,, ,, (3)	2·04	0·23	—	0·09 (pipe).
Perique	5·30	1·28	0·57	0·07 (cigarette). 1·53 (pipe).
Cavendish	4·15	3·85	—	0·12 (pipe).
Latakia	2·35	1·20	—	1·48 (pipe).
Cigar (Havana)	0·64		0·20	1·13
,, (British)	1·24	—	1·06	0·63

In several instances the analysis was repeated, and the results obtained were very consistent. On the whole the

figures show a smaller proportion of nicotine in tobacco than is generally recorded by analytical authorities and others, the range being given by them as from 0·6 to 8·0 per cent. of nicotine.[1] The highest amount found was in Perique, a very pungent and powerful tobacco, which, as a rule, is not smoked alone, but in mixtures containing varying quantities of it. For all practical purposes we may say that the tobaccos consumed by the public contain seldom more than 3 per cent. of nicotine, and generally less, the average being about 2 per cent. or under, and this figure applies to all tobaccos, whether in cigarette, cigar, or smoking mixture.

It is somewhat surprising to find that cigars, which are generally looked upon as a strong form of smoking, contain a smaller percentage of nicotine than smoking mixtures or even than some cigarettes; in fact, a brand of Havana cigar yielded only as much nicotine as a cigarette called "non-nicotinic." It is interesting also to notice that there is very little difference in the amount of nicotine in Egyptian or Turkish cigarettes (both are Dubec tobacco) and American (Virginian) cigarettes. French tobacco (Caporal) contains a good deal more nicotine than either. In regard to smoking mixtures, they contain more nicotine than cigarettes, the amount being between 2 and 3 per cent.; while cavendish contains 4·15 per cent., and Perique 5·30 per cent.

NICOTINE IN TOBACCO SMOKE.

Interesting as these figures are, they convey nothing as to the quantity of alkaloid which the smoker draws into his mouth, nor do they throw any light upon the question as to whether the smoke is richer or poorer as regards nicotine according to the way in which the tobacco is smoked. The analysis of tobacco is obviously not the analysis of the smoke of that tobacco, just as the analysis of the tea leaf is no criterion of the composition of the cup of tea. It is at any rate probable that the three different methods of combustion exemplified in the pipe, cigar, and cigarette would yield smoke showing important differences in regard to the nature and amount of its constituents. We may even go further and fairly assume that the same tobacco would give different products, according to whether it was smoked in a pipe, a cigarette, or cigar.

The next experimental step taken was therefore directed to ascertaining, first, what proportion of the nicotine in the tobacco was expelled from it in the act of smoking; and, secondly, how far the particular form in which it was smoked influenced this proportion. For this purpose a cigarette, cigar, or pipe filled with the particular tobacco was attached to one end of a glass tube about 22 inches long. In the tube was placed a roll 14 inches long of filter paper moistened with a known amount of normal solution of sulphuric acid. At the further end of the tube a small glass tube was attached by means of a perforated cork connecting an exhaust oil pump with the system. Each stroke of the pump could be so regulated as to represent pretty closely the action of the smoker in drawing smoke from a lighted pipe, cigar, or cigarette. Moreover, each column of smoke sucked in by each stroke was allowed some time in contact with the acid paper. The way in which the apparatus was used is shown in the accompanying illustrations. In all cases a known weight (approximately 5 grammes) of tobacco was burnt. On the completion of the combustion the paper roll was withdrawn, the tube washed out with water, and the washings added to the paper. The paper was next exhausted with cold water and the collected extractions filtered. In this way oils were kept back. The clear filtrate was then neutralised with N/10 solution of carbonate of soda, after which a strong solution of iodine in iodide of potassium was added and the iodine in the iodine nicotine precipitate estimated in the way already described.[2] The results, which are recorded in columns 2 and 3 of the table, are of interest.

Taking the case of cigarettes first, it will be seen that a Virginian cigarette, with a nicotine value of 1·40 per cent., gave up only 0·12 per cent. to the smoke. Another Virginian cigarette, containing 1·60 per cent. of nicotine, yielded only 0·06 per cent. of nicotine to the smoke—that is to say, in the first instance, only 8·57 per cent. of the total nicotine of the cigarette appeared in the smoke, and, in the second instance, only 3·75 per cent. of the nicotine passed from the cigarette to the suction-tube (which represents the mouth of the smoker). When, however, the tobacco of these cigarettes was smoked in a pipe, 53 per cent. of the nicotine came out with the smoke in the one case and 37·5 per cent. in the other. The explanation is simple; the combustion of the tobacco in a cigarette is necessarily more complete than combustion in a pipe. There is free access of air to the burning cigarette end, while tobacco in a pipe is in a kind of retort, the combustion being only free on the surface of the tobacco, and the hot gases formed carry nicotine into the smoke. In short, in the cigarette there is much more chance of the nicotine being destroyed than there is in the pipe. Coming to the Turkish cigarette containing initially 1·38 per cent. of nicotine, the alkaloid passing out with the smoke was 0·51 per cent. (that is to say, 37 per cent. of the nicotine present); the Egyptian cigarette containing 1·74 per cent. of nicotine similarly yielded 0·21 per cent. of nicotine in the smoke, or 12 per cent. of the total nicotine present in the cigarette. Caporal cigarettes, with an initial percentage of 2·60 of nicotine, yielded 36·5 per cent. of their nicotine to the smoke, but when Caporal tobacco was smoked in a pipe no less than 84·6 per cent. of its nicotine appeared in the smoke. Caporal non-nicotinic cigarette contained 0·60 per cent. of nicotine, but 65 per cent. of this (0·39) appeared in the smoke, while when smoked in a pipe this tobacco yielded 80 per cent. (0·48) of its nicotine.

Taking smoking mixtures next, No. 1 contained 2·85 per cent. of nicotine, of which 79 per cent. (2·25) appeared in the smoke of the cigarette and 77 per cent. (2·20) in the smoke of the pipe. (It would appear in this case that a smoking mixture gives almost as much nicotine when smoked in a cigarette as when smoked in a pipe, a result which is due probably to the interference with combustion occasioned by the presence of added oils.)

Smoking mixture No. 2 yielded 54 per cent. of its nicotine (2·81 per cent.) to the smoke of the pipe, and mixture No. 3 only 11·2 per cent. of its nicotine to the smoke. Perique yielded 21 per cent. of its nicotine (5·30 per cent.) to the smoke of the pipe, and only 10 per cent. when it was smoked in the form of a cigarette. Cavendish, containing initially 4·15 per cent. of nicotine, yielded 92·7 per cent. of the alkaloid to the smoke of the pipe, and Latakia, with 2·35 per cent. of nicotine, yielded 50 per cent. of it to the smoke.

As to cigars, the initial amount of nicotine in those examined was relatively small, and in the case of a specimen of Havana containing 0·64 per cent. of the alkaloid the smoke contained 31 per cent. of the total nicotine present, while in a British cigar containing 1·24 per cent. of nicotine the amount volatilised in the smoke was as much as 83 per cent. If nicotine is the substance to be avoided in tobacco, it would appear that the Havana cigar gives advantages on that head.

THE ALKALINITY OF TOBACCO SMOKE.

The table contains a fourth column which gives the alkalinity of the smoke in terms of ammonia. It includes volatile bases other than nicotine, and shows that the pipe is more productive of bases than the cigarette, while the cigar runs the pipe closely in this regard. This means once more that combustion is more complete in the cigarette than in either the cigar or pipe, but it does not follow that the products of the cigarette are necessarily less innocent. This is a subject to which we hope to return shortly, for it is clear to us that cigarette smoke contains injurious constituents other than nicotine, amongst which may probably be counted aldehydes, including acrylaldehyde or acrolein, a class of bodies which are intensely irritating. Smoking mixtures appear to yield a very large proportion of basic substances in which ammonia may be included, and it is not unlikely that

[1] A writer in the *British Medical Journal* (April 10th, 1909, p. 911) gives figures which are not seriously different from those yielded by our iodine method. It should be observed, however, that the method there described involved the evaporation of a large volume of distillate after acidification with sulphuric acid, a process which means the loss of a considerable amount of alkaloid, according to our experience, in spite of the acid present. It is well known that aqueous solutions of nicotine salts lose part of the alkaloid on evaporation. Further, the separation of nicotine sulphate and ammonium sulphate by absolute alcohol, which is a subsequent proceeding, is not satisfactory, the sulphate of the alkaloid invariably being contaminated with sulphate of ammonia.

[2] Incidentally we have found that the iodine process described may be applied to other alkaloids. We, for instance, have obtained very satisfactory results with morphia salts. This suggests the general application of an iodometric method to the estimation of alkaloids, since most of them yield an insoluble iodine compound.

these bases produced in the pipe prevent the formation of the irritating compounds often found in cigarette smoke. The same observations apply to the cigar, for a glance at the table will show that cigar smoke is sometimes strongly alkaline though containing comparatively little nicotine, but further investigation is needed upon these points before definite conclusions can be made. We hope to pursue these questions in a further article upon the subject, as well as to publish the analyses in regard to nicotine values of tobacco and the smoke produced therefrom of well-known brands of cigarettes and smoking mixtures upon the market.

In the meantime, the following conclusions appear to be justified so far as the investigation has gone, reference having been made chiefly to the nicotine contents of various tobaccos and to the fate of that nicotine when the tobacco is consumed by the method of pipe, cigar, and cigarette respectively.

CONCLUSIONS.

1. Pipe mixtures contain the largest amount of nicotine (2·04—2·85 per cent.), Egyptian and Turkish cigarettes come next (1·38—1·74), Virginian cigarettes showing similar figures (1·40—1·60), while a British cigar contains even less (1·24 per cent.), and a Havana cigar the least of all (0·64 per cent.).

2. The cigarette, whether Egyptian, Turkish, or American, yields the least amount of its total nicotine to the smoke formed, while the pipe yields a very large proportion (in some cases between 70 and 80 per cent.) of its nicotine to the smoke reaching the mouth of the consumer. Analysis of cigar smoke gives figures midway between the two. It should be observed, however, that though the cigarette smoke, according to these experiments, offers the least objection from the point of view of nicotine, there are indications of other products being present in cigarette smoke which are not present in pipe or cigar smoke, and which cannot be dismissed as harmless. It has to be remembered also that it is so often the cigarette smoker who is guilty of excess.

THE LANCET Laboratory.

ROYAL COLLEGE OF PHYSICIANS OF LONDON.

ELECTION OF PRESIDENT.

A COMITIA was held on April 1st, Sir THOMAS BARLOW, Bart., K.C.V.O., the President, being in the chair.

The PRESIDENT delivered the annual address, in the course of which he referred to the Royal honours and distinctions which had been conferred on Fellows, Members, and Licentiates during the past year. He also mentioned the medals and scholarships which had been awarded, and then proceeded to give a brief review of the lectures which had been delivered, referring especially to the Harveian oration by Dr. C. Theodore Williams. He considered the financial condition of the College, and detailed the bequests which had been given to the College. Among the important subjects which had occupied the attention of the Comitia he laid stress on the relation of the London University to the College and on the discussions which had taken place in reference to the National Insurance Act. He mentioned that Mr. F. J. Hallett had been given permission to proceed to America in order to explain the system and organisation of the Conjoint examinations of the Royal Colleges to the medical authorities of that country.

The PRESIDENT then read short obituary notices of the following Fellows of the College who had died during the past 12 months: Samuel Jones Gee, George Fielding Blandford, Frederick William Pavy, John Hughlings Jackson, William Richard Huggard, John Alfred Coutts, Samuel Wilks, Edward Fauriel Trevelyan, Cecil Yates Biss, and William Henry Allchin.

Sir WILLIAM S. CHURCH proposed a vote of thanks to the President for his address and for the manner in which he had conducted the work of the College during the past year. This was seconded by the TREASURER (Sir Dyce Duckworth) and carried by acclamation.

Sir THOMAS BARLOW thanked the College and vacated the chair. The election for President then took place and Sir Thomas Barlow was re-elected by an almost unanimous vote.

The SENIOR CENSOR (Dr. J. Mitchell Bruce) delivered to the President the insignia of office, and the PRESIDENT gave his faith to the College and thanked the Fellows for the honour they had done him by again electing him.

The following communications were received: 1. From the secretary of the Royal College of Surgeons of England, reporting proceedings of the Council of that College on Feb. 1st and March 14th. 2. From the Royal Sanitary Institute, asking the College to appoint delegates to a congress at York on July 29th next. The invitation was accepted. 3. From the committee of the International Congress of Hygiene and Demography, to be held at Washington in September next, asking the College to take part in the Congress. The request was granted. 4. From the International Historical Congress, to be held in London next year, asking the College to nominate a representative on the General Committee of Organisation. The Harveian librarian (Dr. Norman Moore) was appointed. 5. From the President of the Royal Society, asking the College to nominate a representative who shall take part in the celebration of the 250th anniversary of the Society to be held from July 16th to 19th next. The President consented to represent the College. 6. From the secretary of the Bicentenary of the Medical School, Trinity College, Dublin, asking the College to send two representatives to the festival to be held from July 4th to 6th next. The nominations were postponed until the next Comitia.

Sir George H. Savage was appointed a representative of the College on the Committee of Management of the Chelsea Physic Garden in place of Sir William Allchin, deceased.

A report, dated March 19th, was received and adopted from the Committee of Management. The report recommended:—

1. That the following institutions which had been visited by members of the committee and reported as fulfilling the requirements of the Board, be added to the list of institutions recognised by the Examining Board in England for instruction in chemistry and physics:—Maidstone: Technical Institute. Cirencester: The Grammar School.

2. That the following universities be added to the list of foreign universities whose graduates are exempted from the First and Second Examinations of the Board under the conditions of paragraph IV. Section III. of the Regulations:—Tulane University of Louisiana; Howard University, Washington.

3. That the course of laboratory instruction in Public Health given at University College and the City Bacteriological Laboratory, Nottingham, be recognised for the Diploma in Public Health.

The Committee of Management had considered a report submitted to it by Dr. Norman Moore, the Visitor to the Examinations of the Egyptian Medical School for the year 1911, and now reported to the Royal Colleges that the examinations of the school are in every way satisfactory.

A report from the Insurance Act Committee, appointed at the last Comitia, was received and adopted. The report was as follows:—

1. At the first meeting (Feb. 7th), in response to a letter from a similar committee of the College of Surgeons, it was resolved to send delegates to confer with delegates from the committee of the College of Surgeons. [A meeting of these delegates was held on Feb. 13th, at which the discussion chiefly centred upon the advisability of conferring with other bodies.]

2. At the second meeting of the committee, held on Feb. 20th, a letter from the Society of Apothecaries having been read which expressed their desire to meet the Royal Colleges in conference, it was resolved, subject to the approval of the College of Surgeons, to call a conference of the committees of the College of Physicians, College of Surgeons, and Society of Apothecaries.

3. A conference of these three bodies was therefore held at the College on March 5th, at which 33 representatives attended, and it was decided to invite the Medical Faculties of the Universities of England and Wales to send each a representative to the next conference.

4. A second conference was held at the College on March 21st, at which were present representatives of the Medical Faculties of the Universities, of the College of Physicians, of the College of Surgeons, and of the Society of Apothecaries (40 in all); and the following resolutions were passed:—1. That it be recommended to the constituent bodies of this conference that they sanction its formation as a joint committee for watching the interests of the medical profession in regard to the Insurance Act, and considering alternative methods of attaining the objects of the medical portion of the Act. 2. That an "Agenda Committee" be formed, to consist of ten members of the conference, resident in London; the Presidents of the two Colleges, the Master of the Society of Apothecaries, and the Registrar of the College of Physicians (as secretary), being *ex-officio* members thereof, and the nomination of the remaining members being left in the hands of the two Presidents. 3. That a resolution in the following terms be sent to the public press: "That this conference, in which are represented the Medical Faculties of the Universities of England and Wales, the Royal College of Physicians of London, the Royal College of Surgeons of England, and the Society of Apothecaries, recognises that there is a remarkable unanimity of opinion within the medical profession as to the attitude which its members should adopt towards the working of the National Insurance Act of 1911. This conference desires to place on record its general approval of the principles which inspire that attitude, and while conscious that there is some difference of opinion with regard to details, expresses its willingness to support the demand that these principles should be recognised by those who are responsible for the administration of the Act before medical practitioners consent to work under it."

The PRESIDENT then dissolved the Comitia.

BRITISH MEDICAL BENEVOLENT FUND.

ANNUAL GENERAL MEETING.

THE annual general meeting of this Fund was held on March 13th, in the Egyptian Hall, Mansion House. During the early part of the proceedings the chair was occupied by Mr. Sheriff BRIGGS, and later by Sir THOMAS CROSBY, M.D., the Lord Mayor of London. There was a large audience, and those on the platform included the Lady Mayoress, Bishop Boyd Carpenter, Sir Thomas Barlow (President of the Royal College of Physicians of London), Mr. Rickman J. Godlee (President of the Royal College of Surgeons of England), Sir William Church, Sir John and Lady Tweedy, Sir T. Clifford Allbutt, Lady Broadbent, Sir David Ferrier, Sir Henry Morris, Mr. Edmund Owen, Professor Howard Marsh, Dr. Samuel West, and Dr. Robert Hutchison.

Dr. WEST, treasurer of the Fund, in presenting the report, said the Fund was founded in 1836, and was therefore 76 years old. In that time it had expended from £160,000 to £170,000 in relief, and it had relieved nearly 9000 persons. The objects of the Fund were to make grants of money to distressed members of the medical profession, their widows or orphans, and to provide annuities for such after they had reached the age of 60 years. The Fund was not a provident society, but a general charity; its doors were open without restriction to all deserving cases which were qualified, the only pass-words being poverty and distress. Due inquiry was made into all the cases, but there was no publicity and no canvassing. But no canvassing meant the loss of a great opportunity of advertisement, and the Fund depended on its friends to make up for that want by an active propaganda among those who could influence it. The cases of distress which came under observation fell into two groups—those in which the distress was of a temporary character and temporary relief was required, and those in which the causes were permanent, as in old age or ill-health, so that the grant once given had to be continued. It practically amounted to an annuity. As soon as these recipients reached 60 years of age they passed automatically on to the annuity list, so that the annuity department acted as a relief to the grant department. The annuities were paid from income on invested property. All the legacies of recent years had been invested, and for safety put into trust securities, and the income served to support 131 annuitants at the present time. The amount of the annuity was small, £20. Last year the annuity department spent £2709 18*s.* 4*d.*, and in addition to that having a little money in hand, the committee decided to send a Christmas-box—unexpected, and therefore doubly agreeable—to all the annuitants, which cost £125, to be exact. The grant department was for the purpose of relieving those below 60 years of age, and in this department were many of the most distressing cases. The grants were, unfortunately, small, and it would be very useful if an emergency fund could be started, out of which larger amounts for temporary relief could be drawn. The grants, £1 or £1 10*s.* in monthly instalments, were supplied by the annual subscriptions, the subscriptions and donations of the year, and it therefore lay with the subscribers and friends of the Fund, if they thought the amounts too small, to give the Fund an opportunity of increasing them. It had happened more than once in the last few years that the committee had a long list of distressing cases while there was an actual deficit. Last year £2191 16*s.* 6*d.* was expended in this department. With regard to the Guild, for many years grants of money were supplemented by gifts of clothing. Cast-off clothes too shabby for the well-to-do were treasures to the beneficiaries. Gradually, however, the parcels of clothing became too large and too numerous to be dealt with in private houses, and arrangements had to be made elsewhere for their reception and distribution. When Sir John Tweedy, who had been extremely liberal to the Fund—he had just given 100 guineas—became its President, Lady Tweedy became greatly interested in the work and began on the clothing department. A room was taken, and an attendant engaged to receive, sort, and alter the clothes, and mend any which wanted it, and a committee of the ladies was established to manage the distribution. From this sprang the Guild, which was practically the ladies' branch of the Fund. It extended and supplemented the work of the Fund. Although the Guild had been established only two and a half years it had made very satisfactory progress. It began its work by supplementing the grants made to beneficiaries with clothes and boots and help in sickness and emergency. This year it had been able to give a short holiday to some who required it, and the special direction in which it was developing was that of education and training. Owing to a most successful concert, the means of purchasing two presentations for boys to St. Anne's School had been provided. Other children and young people had been helped by schooling and training, by which means they would be placed in the position of earning their own livelihood afterwards. This was the best investment of charitable money, for it enabled the beneficiaries to become self-supporting and to preserve their independence and self-respect. Dr. West called attention to the fact that £2380 had been received this year in legacies, which with a few small sums had been invested, and would yield about £100 more in income. In the report attention had been drawn specially to the 100 guineas from the Medical Sickness and Accident Society. That was very good testimony to the usefulness of the Fund. They had had another liberal donation of £100 from Dr. Theodore Williams, 50 guineas from the President, 30 guineas from the Medical Insurance Committee of THE LANCET and British Medical Association, 30 guineas from Sir Alfred Pearce Gould, £25 from the Drapers' Company, £25 from Dr. Frank and Mrs. Webb, 20 guineas from the Cheselden Lodge, and 25 guineas from the Santa Maria Freemasons Lodge. In conclusion, he said that, from intimate knowledge and personal experience now extending for many years as treasurer, he could vouch personally for the excellent work that the Fund was doing. On the ground of the absolute need for such a fund, the excellence of its work, and the economy of its administration, and on the soundness of its financial position, he felt that he could appeal with confidence for increased support, not to the profession only, but also to the public, to whom the profession rendered great and often under-valued services.

Just before Dr. West closed his speech the Lord Mayor took the chair.

The Right Rev. Bishop BOYD CARPENTER moved the adoption of the report. He would like, for the sake of what he called the common condition of society, to make a plea for greater consideration for those who belonged to the professional class. He could not help thinking that, in the midst of a community where the predominant feature was naturally commercial, there was always more or less a danger that the value of professional services might be under-rated. And he would appeal to the community and ask them how they could expect to have their life in the same comfort and ease and peace if the three great professions were suddenly to disappear from their midst. Commercial vigour depended after all upon health; commercial security depended upon the impartiality of law; and he thought the highest spirit which ought to pervade all trade largely depended on the consideration of religion. It would be an ill time for mankind if these great professions were suddenly to be removed from the earth. The importance of their existence to society at large constituted a very strong claim upon consideration. The professional man occupied a position of far greater delicacy than those who belonged to some commercial calling. He occupied a position of delicacy because, having been instructed, having passed through a severe training, he was, should he say, almost drawn up into himself—he had a kind of fastidiousness with which he regarded the affairs of life. Every profession had, where men rightly represented it, a peculiar sensitiveness with regard to the honourableness of its practice. Therefore professional men were excluded from the methods and the ways which were, alas, often too commonly accepted without consideration in other branches of life. And that, in itself, constituted a disadvantage, though from another point of view an advantage—but a disadvantage in the contest and conflict of life which belonged to those who were enlisted in the learned professions. They could not defend themselves in the same way as other men could. The men who lived by treating the public for disease were placed in a very difficult position at the outset. The demand of humanity was one, the necessity for subsistence was another fact, and both were equally strong. He could not help noticing that there was abroad a spirit which imagined that the only profession in the world which was to be precluded from the right of a living wage was the

medical profession. If that was the case with regard to the position of the profession, he would point out another fact, and that was that the spirit in which the whole of the medical profession carried on its work was a spirit of extraordinary generosity. He did not think that the public at large realised it, because the doctors did not go about advertising their own heroism and their own generosity. Hundreds of doctors gave of their time absolutely freely in order to treat the poor. He passed over those cases; they were perfectly obvious. And there were well-to-do people who were mean and cowardly enough to take advantage of this free labour to seek medical assistance when they were well able to pay their due fee. The generosity of the doctor went far beyond that of setting aside an hour or so of the day to treat freely those who could not afford to pay a fee. He referred to the kindness which doctors had shown to what he described as genteel poverty. From the attitude which the medical profession had taken up towards the public, from its kindliness to the poor, from its delicate fastidiousness of treatment when it met with genteel poverty, from the public-spirited way in which it sought to arrest disease, as well as for the devotion with which it sought to cure it, medical men were entitled to special consideration at the hands of everyone who desired well of his country and well of humanity. It was a very costly thing to prepare a man for a profession, a point which the average economist of to-day failed to take recognition of. Every man who was trained for a profession had invested an amount of capital, and often a substantial amount, which had been risked upon the probability of his making for himself a career. A man who started in a profession started with a dead weight, with a non-remunerative investment upon his shoulders. That in itself demanded, he thought, from the public generosity of treatment. It should also be remembered that every day this handicap of the medical profession tended, as it were, to become greater; the burden on the young man's back who was starting his professional career was heavier to-day. The medical man at the commencement of his career was handicapped with an expensive education, and he started it with a risk very much like that which the captain of a ship felt when he started upon his voyage. The doctor was risking his own health and life; he was obliged to stand before those who sought his services as a man of iron patience and indomitable industry. The man who started in the medical profession started with very great risk, and if people would only take the trouble simply to read over the stories which were suggested in the few pertinent words of the cases which had been helped by this Fund he thought they would understand what he meant—a doctor, for example, breaking down in young life, perhaps by the time he was 40 years of age, would find that in one moment his health had gone wrong, and that therefore the patients had left him, and that there was nothing before him but this: his life to be lived without the means of living. And what had been the cause of this? His ministry to the public had brought about this very weakness. It was to deal with cases of this kind that the Fund existed. He had looked over the list, and there were as many as 15 medical men who were pensioners and as many as 20 who had been relieved in the course of the past year by some temporary grant, all men who had served with industry, and now under conditions sometimes arising out of their professional devotion. He commended the cause of this medical charity.

Sir T. CLIFFORD ALLBUTT said it would not perhaps be unfair to express a very strong feeling of the honour and self-devotion of his brethren who were engaged in general practice, especially those who were engaged in the humbler kind of general practice, who brought talents of a high order to bear upon work which was thankless work, which they did devotedly, knowing that they had other duties of a higher kind in which they would find their reward. He thanked the Bishop for saying of the profession what it would have been a little difficult for a member of the profession to say about his calling. From top to bottom throughout medicine was not a wealthy profession; and if one left out the upper strata of the profession it became anything but a rich profession. Nevertheless, in spite of that, it was one which depended almost absolutely upon the personal presence and acts of the medical individual himself. A solicitor, for example, who was laid aside for a day or two, or was called away, or went for a well-earned holiday, had representatives who could represent him for a time. But in medical practice it was peculiarly the position of the doctor that he must himself personally, and there and then, attend to his calls. That was a great strain upon a medical man's life. Though medical men were not below other men in temperance and thrift, nevertheless it was the wear and tear which told. And if, in addition to that, they had the care and anxiety of their families, if these were not as well provided for as they would like them to be, there was an additional wear and tear. Medical men often could not afford to insure their lives, because the cost of educating their children took a preliminary place. He was sure he would not be supposed to make political allusions when he said whatever might be the working out of the Insurance Act, for the present, like any great change—he was not blaming the Government, nor anybody else—like every great change, it had made a very serious difference to the medical man now. That was to say, if he had not insured his life he said, "Well, my practice is saleable, at the year's or 1½ years' income, and I know that will come in, or if I fail in health." But for the present, so far as one could see, for the next five or six years, however reasonably and rationally medical men might be treated, their prospects were so altered that it was impossible to hope that their practices would be saleable. And that would make a very great difference to medical men in illness, or in death, during the next generation, perhaps. Every sovereign which was given to the British Medical Benevolent Fund would do its full measure of good, not a sixpence of it would do harm to anybody, so conscientiously and economically was it managed. He was sure that on account of the personal supervision which was given every sovereign was worth 30s., or even two sovereigns, because money could not be given for a better cause or for a higher purpose.

Sir THOMAS BARLOW said it was perfectly well known that medical men at every stage did an enormous amount of work, especially for the poor, and for those who were on the border-line, work which brought no remuneration. One might say that he got some return, for it gave him experience. But he (Sir Thomas Barlow) wished to point out that if for no other reason the benefits which the public generally derived from members who had gained experience in that way, and gave their flesh and blood, and, so to speak, all that was best in them and of them, for the help of their poorer brethren, surely it was fitting that some return should be made by the public for these services. Briefly outlining the work of the Fund, he laid special stress on the work of the Ladies' Guild. There was, he said, a school at Epsom at which boys of medical men could be educated; but there was as yet no adequate provision for the girls of medical men, and the Ladies' Guild had determined that it would not rest until some provision was made in that way.

The report was then unanimously adopted.

Sir JOHN TWEEDY (President of the Fund) proposed a vote of thanks to the Lord Mayor for convening the meeting of the Fund in the Mansion House and for taking the chair on the occasion. It was, he said, the first time that a meeting of the British Medical Benevolent Fund had been held in the Mansion House, though not the first time that they had had the benefit of the support of the Lord Mayor. He congratulated Sir Thomas Crosby on the high distinction which he had attained in the City of London. He had been raised to the Chief Magistracy of that great city, and he had attained that eminent municipal and civic distinction as a hard-working doctor. A few weeks ago the Lady Mayoress had presided at a meeting in the West End in connexion with the British Medical Benevolent Guild; and at that meeting there was inaugurated a movement which he believed would have the greatest beneficial influence in London to organise the administration of the Guild's work throughout the various divisions of the metropolis. Ladies were already beginning to organise visiting committees and clothes committees in various parts of London on behalf of the Guild, and he had no doubt that before long the London ladies would be able to remove the reproach from London, that up to the present the Fund had not in London done as much as it ought to do, not as much as some of the extra-metropolitan cities, like Liverpool and Edinburgh, had done.

Mr. RICKMAN GODLEE supported the vote of thanks, which was put to the meeting and carried unanimously.

The LORD MAYOR, in his reply, said that on behalf of himself and the Lady Mayoress he thanked them. It had

been a great pleasure to preside at the meeting, and having spent a long and arduous life in the profession his interest was closely and inseparably bound up with it. All that had been said by every previous speaker he could endorse.

Public Health.

REPORTS OF MEDICAL OFFICERS OF HEALTH.

Chelmsford Rural District.—Dr. J. C. Thresh's annual report for 1911 is prefaced by some pages of general information on lines which might be adopted with advantage in many reports by medical officers of health for rural areas. They show at a glance the organisation of the sanitary administration of the district, and specify the parts of it which possess urban powers for special purposes, the by-laws, adoptive Acts, and local regulations in force, and the nature of the public works owned or controlled by the district council. The report gives special attention to the various public water-supplies of this large area in Essex—a matter which, in the event of military manœuvres on a large scale or mobilisation, may become of more than local importance. At Great Baddow a slight change found in the bacterial content of the water of the public supply after every heavy rain led to a series of experiments to detect the source of pollution, in which the value of fluorescin was strikingly brought out. By fluorescin tests the direction of flow of water in the gravel beds from which the supply is obtained, the point at which the water enters the collecting tank, and the area on which dangerous pollution might take place were all accurately determined, and remedial measures have been based on these determinations. Dr. Thresh lays stress upon the effect of recent legislation and departmental orders in regard to the inspections which are required to be carried out under the direction of medical officers of health. These have to be made systematically and in great detail, and if work such as is now contemplated under the Housing and Tuberculosis Regulations of the Local Government Board is to be executed with any real efficiency local authorities are bound to add to their sanitary staffs and must face the necessary expenditure. The demand for cottages in this district considerably exceeds the supply, and this presses particularly hardly on the agricultural labourer. In many parishes young people are being driven away because they cannot marry; farmers find much difficulty in finding labour, and labourers have to live long distances from their work; artisans from the town come into the outskirts and drive away local labourers, who cannot afford such rents as the artisan is prepared to give, while in the rural district generally the agricultural labourer gets displaced from his cottage by persons in domestic employment in country houses, old-age pensioners, and elderly people retiring from active work. The attempts of the local authority to get insanitary property put to rights often fail, as the owner declares his intention to oust the tenants and close the cottages rather than to incur the expense of repairs. After studying the needs of the different parishes, a committee has recommended the district council to erect at once 50 cottages. Dr. Thresh estimates that possibly 1*s.* a week for each cottage would fall to be paid out of public funds, or about a ½*d.* rate on the whole district, and is convinced that the money could not be better spent. The type of cottage most needed is one with three bedrooms and two good living-rooms. Although objections may be made to allowing the cottages to be "tied," the only practicable plan in many cases would be to let them be taken by the farmers, who would be responsible for the rents.

Stowmarket Urban District.—In this district, in the same neighbourhood, at least 29 cases of epidemic poliomyelitis occurred during August and September, in a population of 4230. Of these 29, 5 occurred in adults, 5 in infants under 2 years, and 13 in children between the ages of 2 and 12 years. Nine cases were fatal. In one instance three cases occurred in one house on August 12th, 17th, and 19th respectively. In two other instances there were two cases in one house, and elsewhere cases were grouped in adjacent houses. Dr. S. Hillier draws attention to the exceptional swarms of flies noticed during the months in question, and to dust and other conditions associated with the hot weather of the period which may have been concerned with the spread of the disease. The epidemic ceased suddenly in the middle of September. Much care was taken to secure isolation, in hospital or at the homes. The value of compulsory notification was emphasised, not only from a public health point of view, but from an economic standpoint. Dr. Hillier reports that before notification was adopted exaggerated rumours prevailed, panic was created, and the town suffered in consequence; after notification authoritative statements could be made and public anxiety allayed.

Thingoe Rural District.—Dr. C. S. Kilner's annual report for this district, like several others which are now making their appearance, gives evidence of the extensive distribution of epidemic poliomyelitis during 1911. In this rural area in Suffolk cases were reported from eight different parishes between August and November. The earlier cases were considered at first probably to be cerebro-spinal fever, and it is instructive to note that a small outbreak of a similar character, then assigned to cerebro-spinal fever, occurred in this district in 1907. The district is without any isolation hospital provision.

VITAL STATISTICS.

HEALTH OF IRISH TOWNS.

IN the 22 town districts of Ireland, having an estimated population of 1,157,014 persons in the middle of this year, 622 births and 460 deaths were registered during the week ending March 23rd. The annual rate of mortality in these towns, which had risen from 22·1 to 24·7 per 1000 in the three preceding weeks, declined to 20·7 per 1000 in the week under notice. During the first 12 weeks of the current quarter the mean annual death-rate in these Irish towns averaged 23·4 per 1000; in the 94 large English towns the mean annual death-rate during the same period did not exceed 16·3 per 1000, while in the 18 Scotch towns it was equal to 18·5 per 1000. The annual death-rates in the several Irish towns in the week under notice were equal to 24·8 in Dublin (against 13·5 in London), 18·8 in Belfast, 22·5 in Cork, 14·0 in Londonderry, 8·1 in Limerick, and 7·6 in Waterford, while in the 16 smallest of these Irish towns the mean annual death-rate was equal to 21·3 per 1000.

The 460 deaths from all causes in the 22 Irish towns were 89 fewer than the number in the preceding week, and included 25 which were referred to the principal epidemic diseases, against 41 and 40 in the two preceding weeks; of these 25 deaths, 6 resulted from measles, 6 from infantile diarrhœal diseases, 4 from whooping-cough, 4 from diphtheria, 3 from scarlet fever, and 2 from enteric fever, but not one from small-pox. These 25 deaths from the principal epidemic diseases were equal to an annual death-rate of 1·1 per 1000; the death-rate from these diseases was equal to 1·3 per 1000 in the 94 large English towns, and to 2·3 per 1000 in the 18 Scotch towns. The deaths attributed to measles, which had been 4 and 7 in the two preceding weeks, numbered 6 in the week under notice, and were all recorded in Dublin. The deaths of infants under two years of age from diarrhœal diseases, which had been 13 and 8 in the two preceding weeks, further declined to 6, and included 2 in Dublin. The fatal cases of whooping-cough, which had been 13 and 16 in the two preceding weeks, declined to 4 and were all registered in Belfast. The deaths referred to diphtheria numbered 4, against 5 in each of the two preceding weeks, and included 3 in Dublin. Of the 3 deaths attributed to scarlet fever, 2 were registered in Dublin and 1 in Belfast; the 2 fatal cases of enteric fever were recorded in Dublin and Belfast respectively.

The deaths referred to diseases of the respiratory system, which had been 135, 135, and 148 in the three previous weeks, declined to 136 in the week under notice. Of the 460 deaths from all causes in the 22 Irish towns, 135, or 29 per cent., occurred in public institutions, and 5 resulted from different forms of violence. The causes of 16, or 3·5 per cent., of the total deaths were not certified either by a registered medical practitioner or by a coroner after inquest; in the 94 large English towns the proportion of uncertified causes of death did not exceed 0·7 per cent.

THE SERVICES.

ROYAL NAVY MEDICAL SERVICE.

THE undermentioned Surgeons have been promoted to the rank of Staff Surgeon in His Majesty's Fleet: William Rhodes Harrison and James Arthur Thompson (dated June 9th, 1910); George Deane Bateman, Donald Pontz Chapman, and William Nichols Blatchford (dated Nov. 21st, 1910); and Frederick Cock (dated Nov. 23rd, 1911).

ROYAL ARMY MEDICAL CORPS.

Surgeon-General J. G. MacNeece, C.B., principal medical officer of the Sixth (Poona) Division, has been selected to succeed Surgeon-General H. R. Whitehead, C B., as Deputy-Director of Medical Services in the Southern Command.

Colonel F. H. Treherne has taken up duty at Bangalore as Principal Medical Officer of Cavalry and Infantry Brigades. Colonel E. Butt has taken up duty as Principal Medical Officer of the Seventh (Meerut) Division, in succession to Colonel M. W. Kerin, C B., transferred as Principal Medical Officer of the Eighth (Lucknow) Division. Colonel C. E. Nichol has assumed duty at Calcutta as Principal Medical Officer of the Presidency and Assam Brigades, in succession to Colonel E Butt, transferred to Meerut.

Lieutenant-Colonel T. Daly has been granted six months' leave of absence home from India. Lieutenant-Colonel C. C. Reilly has embarked for a tour of service in India. Lieutenant-Colonel E. H. L. Lynden-Bell has been detailed as Senior Medical Officer on board the troopship s.s. *Rohilla*, which left Karachi for Southampton on March 28th.

Major St. J. B. Killery has been transferred from Jersey to Leeds. Major A. C. Fox has been appointed to the Curragh. Major J. P. Silver has been transferred from Edinburgh to the Dublin District. Major F. A. Symons has been appointed to the Military Hospital at Cosham. Major S. W. Sweetman has been transferred from Colaba to the Station Hospital at Kirkee, Poona Division. Major E. W. P. V. Marriott has taken over charge of the Military Hospital at Mullingar. Major L. Wood has embarked for a tour of service in India. Major A. Chopping has been posted to the Eastern Command. Major R. H. Lloyd has taken up duty at the Station Hospital, Ferozepore. Major E. P. Hewitt has been transferred from Secunderabad to the Station Hospital at Poonamallee. Major C. F. Wanhill has been posted to Mhow.

Captain T. C. C. Leslie has been ordered to join the Irish Command for duty, and will be posted to the Cork District. Captain W. J. S. Harvey has embarked for a tour of service in Jamaica. Captain J. S. Dunne has been detailed for duty on board the transport s.s. *Rohilla*, which left Karachi for Southampton on March 28th. Captain F. W. W. Dawson has taken up duty in the Dublin District. Captain H. W. Farebrother has been transferred from Bangalore to Rangoon. Captain M. Keene has taken up duty at the Military Hospital, Colchester. Captain G. G Tabuteau has been ordered to join the Irish Command for duty, and will be stationed in the Dublin District. Captain C. G. Browne has been granted general leave of absence home from India for six months. Captain J. S. Bostock has been appointed to the Station Hospital at Agra. Captain C. E Fleming has joined for duty at Potchefstroom. Captain H. C. Sidgwick has been transferred from Woolwich to Kingston-on-Thames. Captain H. T. Stack has embarked for a tour of service in India. Captain L. A. Andrews has been directed to join the Irish Command for duty and on arrival will be posted to the Belfast District. Captain J. H. Barbour has been transferred from Jubbulpore to the station hospital at Nowgong, in relief of Captain E. C. Phelan.

Lieutenant S. S. Dykes, Lieutenant C. T. V. Benson, Lieutenant P. S. Tomlinson, Lieutenant E. C. Stoney, and Lieutenant W. H. O'Riordon, have embarked for a five years tour of service in India. Lieutenant J. K. Gaunt has been transferred from Fermoy to Limerick. Lieutenant M. White, on conclusion of sanitary course at Lucknow, has been appointed to Allahabad. Lieutenant R. F. Bridges has joined at Canterbury for duty at the Military Hospital Lieutenant A. W. Bevis has embarked for a tour of duty in South Africa. Lieutenant E. T. Gaunt has been appointed to Dover. Lieutenant J. R. Yourell has embarked for a tour of service in Burma. Lieutenant R. C. Priest has joined at Lebong. Lieutenant O. W. McSheehy has been appointed to Pietermaritzburg for duty at the Military Hospital. Lieutenant H. F. Joynt has taken up duty at Bloemfontein. Lieutenant E. G. H. Cowen and Lieutenant W. Stewart, on completion of their probationary courses, have been posted to Colchester.

INDIAN MEDICAL SERVICE.

Lieutenant-Colonel C. E. L. Gilbert has been granted an extension of his leave of absence by the Secretary of State for India until Sept. 20th next, on the recommendation of a medical board. Lieutenant-Colonel W. D. Sutherland has been attached for special duty to the office of the Principal Medical Officer of the Fourth (Quetta) Division. Lieutenant-Colonel T. E. Dyson has been granted privilege leave of absence, combined with furlough, home from India for one year.

Major V. B. Bennett has been appointed to act as first-class Civil Surgeon vice Lieutenant-Colonel B. B Grayfoot, who has been placed on deputation. Major A. H. Moorhead has been granted an extension of leave of absence until April 28th. Major C. E. Williams has taken over duty as Sanitary Commissioner to the Government of Burma, relieving Major S. A. Harris. Major R K. Mitter has been granted three months' privilege leave of absence. Major H. A. F. Knapton has been selected for appointment as Officiating Sanitary Commissioner for the Government of Bombay during the absence of Lieutenant-Colonel T. E. Dyson. Major J. W. F. Rait has been granted an extension of his furlough.

Captain J. H. Horne has taken up special duty in Madras Presidency in connexion with the prevention of malarial fevers. Captain C. E. Southon has been appointed Plague Medical Officer at Rawal Pindi. Captain A. G. Tresidder has been granted one month's extension of his leave of absence on medical certificate. Captain W. M. Houston, on return from leave, has been appointed Assistant to the Civil Surgeon at Poona. Captain H. R. Dutton has been placed on special duty in connexion with plague prevention in the Shahabad District. Captain W. D. Ritchie has joined for duty at Dhubri. Captain W. Thorburn has been appointed Civil Surgeon at Dana. Captain J. Deas has been appointed Agency Srugeon to the Eastern Rajputana States.

The following Lieutenants on probation have joined the Royal Army Medical College for the junior course of instruction:—R. H. Candy, P. J. Veale, H. Hingston, J. C. Bharucha, F. J. Anderson, H. J. M. Cursetjee, J. S. S. Martin, P. F. Gow, R. V. Morrison, J. C. Dey, J. W. Jones, and J. H. Hislop.

COLONIAL MEDICAL SERVICES.

West African Medical Staff.—No deaths; no resignations. Transfers: P. C. Conran, M.R C.S. Eng., L R C.P. Lond., medical officer, Northern Nigeria, has been transferred to the Nyasaland Protectorate; and E. Langley Hunt, L.R C.P. & S. Irel., medical officer, Gold Coast, has been appointed an Itinerating Inspecting Officer in the Medical Department of Ceylon. New appointments: The following gentlemen have been selected for appointment to the staff: C. L. Ievers, L R.C.P. & S. Edin., L.F.P S. Glasg., Gold Coast; and R. Semple, M.B., Ch.B. Aberd., Sierra Leone. *Other Colonies and Protectorates.*—F. R. Sayers, M.D., B.Ch., B A.O., D.P.H. Dub., to be House Surgeon, Straits Settlements; and D C. Macaskill, M.B., Ch B. Edin., to be Medical Officer (Grade III.), Federated Malay States.

THE INVALIDITY AND DEATH-RATES OF THE NON-NATIVE OFFICIALS OF WEST AFRICA.

There has just been issued from the Colonial Office a return dealing with the vital statistics of non-native officials in West Africa, which affords very satisfactory reading for all those who know how much has lately been done, as well as attempted, to improve the general conditions under which the servants of the State do their arduous work in these regions. In the return a graph of the invalidity rate per 1000 from 1903 to 1911 displays, with one exception, an annual drop, the highest figure being 63—this was in 1904—and the lowest 25. The graph of the death-rate per 1000 throughout the same period displays a similar steady drop from a highest figure of 29 to a lowest of just under 14.

A BEQUEST of £300 has been left to the East Sussex Hospital, Hastings, under the will of the late Mary Jane Day, of Bexhill.

Correspondence.

"Audi alteram partem."

THE BED ISOLATION OF CASES OF INFECTIOUS DISEASE.

To the Editor of THE LANCET.

SIR,—With reference to a rather vague remark in Dr. F. G. Crookshank's letter under this title in THE LANCET of March 23rd, I may point out that the observations of Dr. Rundle and Dr. Burton represent a definite advance; the ground covered by them justifies a reasonably safe generalisation. It is the number of their cases, very varied in kind and dealt with in large wards, that goes far towards establishing the safety of bed isolation. The results, it may be noted, show that the cleansing of the mouth, throat, and nose was not a material factor in success. This is important, because such treatment, as early experience with the barrier proved, has two issues: while the immediate output of profuse discharge is largely controlled, the chance that the nurses may infect other patients becomes greater. A ward is about to be opened at Plaistow Hospital for bed isolation on the lines adopted at the Fazakerley Hospital, and, for a time at any rate, cases requiring much local treatment will be excluded from it.

Glass partitions are an obstacle to quick work, but can hardly be classed with the "fetish of the wet sheet." It is certain that, where a very high level of preventive nursing cannot be ensured, partitions will stop cross infection which would occur if bed isolation or the barrier were relied on.

Dr. Crookshank's reference to the cord barrier as "symbolic" also requires qualification. The cord serves a definite purpose. It is to be remembered that in barrier work only a minority of the cases in a main ward are isolated, and their beds must therefore be clearly indicated. Further, the nurses are for the most part attending to patients without any precautions whatever. Under such conditions, while leaving the way to the barriered bed quite open the cord represents a line beyond which the nurses must never pass without putting on an overall.

The scope of the barrier at Plaistow Hospital was extended last year, and the following diseases are now isolated by means of it in main wards: diphtheria, mumps, whooping-cough, rubella, typhoid fever, erysipelas, septic infections of the throat and nose, Vincent's angina, septic skin infections, including impetigo, ringworm (except in scarlet fever wards), spreading infections of the eye, vaginal discharge in young children, and syphilis. Cross-infection, except when an attempt is made to barrier scarlet fever, is practically non-existent, unless it originates from some other source than a barriered patient. The barrier has failed entirely in the case of chicken-pox. It has apparently helped to prevent outbreaks of measles when used during onset, but will not control this infection if a case remains in a main ward. A patient not suffering from scarlet fever may be saved from that infection in a ward containing many cases of it, and, reversely, the barrier may control out-going infection by scarlet fever, but in neither instance is the result certain. Until I came into touch with the work at Fazakerley Hospital I was inclined to attribute these limitations of the barrier to aerial convection.

Between the barrier, as employed at Plaistow Hospital, and the method practised at Fazakerley Hospital, which has no barrier, there are certain differences telling in favour of bed isolation. 1. In the barrier each isolated bed is equipped with everything required for the patient; at Fazakerley Hospital there is a common stock of sterilised articles from which things are taken when wanted, and to which they are returned. The simpler method is more likely to succeed. 2. Local treatment is not a regular feature at Fazakerley Hospital, while at Plaistow Hospital it is adopted in almost all cases. 3. After touching a case at Fazakerley Hospital the nurse washes her hands and then disinfects them; at Plaistow Hospital she merely dips her hands in a disinfectant when going to the case, and again after leaving it, unless she has been in contact with a discharge, when she washes them.

So far as the test at Fazakerley Hospital goes—and I think it unlikely that criticism or further investigation will shake the evidence it affords—bed isolation has three outstanding advantages over the barrier: 1. Chicken-pox, measles, and scarlet fever are controlled by it. 2. Mixed and unusual infections can be brought to one centre; the barrier system implies the control of many centres throughout a hospital. 3. The method is simple, and does not tax the nursing staff so severely as the barrier.

I am, Sir, yours faithfully,

Wimpole-street, W., March 26th, 1912. JOHN BIERNACKI.

THE HUMAN ELECTROCARDIOGRAM.

To the Editor of THE LANCET.

SIR,—All who are interested in the study of the heart are indebted to Professor Einthoven and Professor Waller for their extremely interesting communications published in your last issue. They are the fathers of electrocardiography, Professor Waller having discovered what we may call the electric pulse in 1887, and Professor Einthoven having invented the string galvanometer and made such extensive investigations by its means. Their communications dealt largely with the matter from the physiological side; but as practical physicians, I suppose the question that interests us most is, how far will the string galvanometer help us in clinical medicine and what are the problems in connexion with disease it has already elucidated?

Having worked with the instrument for many months, I have arrived in my own mind at certain definite conclusions with regard to its possibilities. It is incomparably the best means of distinguishing between and elucidating the different arrhythmias. This has considerable importance. Take, for instance, the bradycardias: a patient presents himself with a pulse-rate between 30 and 40. This may be due to Adams'-Stokes disease (partial or complete heart-block), or to regularly occurring early extra systoles. It might be objected that the presence or absence of epileptiform attacks would determine the diagnosis, but slight attacks of this nature may occur with extra systoles if the pause between the full beats is sufficiently long, and they may be absent with complete heart-block; the three or four time rhythm of the heart sounds in a case of extra systoles is not always easy to make out. Of course, the method of simultaneous venous and arterial tracings which has led to such remarkable results in the hands of James Mackenzie and others might be used, but this is not always easy to apply, and the results when obtained are often difficult to interpret. An electrocardiogram, on the other hand, solves the problem at once. A case which Dr. Halls Dally described at the meeting of the Chelsea Clinical Society was an instance in point; it was impossible to obtain a phlebogram, but an electrocardiogram, which took only a few minutes, showed the condition to be complete heart-block in the clearest possible way.

With regard to the finer differences of potential which Professor Einthoven discussed, it seems to me much future work remains to be done before we can completely estimate their full clinical bearing. Certain foreign observers, I think, have generalised rather too early; for instance, marked negative variation with the third or left lateral lead has been stated to show aortic regurgitation. This certainly cannot always be true, for three workers in this laboratory, all of whose hearts are perfectly normal so far as the ordinary means of investigation show, present this anomaly. The accurate investigation of these variations, however, certainly should be undertaken, and enough has been done to point to the possibility of their being of great value. The string galvanometer is the instrument *par excellence* for showing the state of the auricles and what they are doing. At the meeting of the Chelsea Clinical Society I showed an electrocardiogram taken from a patient suffering from mitral stenosis; there was a well-marked presystolic murmur; the electrocardiogram presented great exaggeration of the auricular or P wave. This was compared with one from a case of mitral stenosis where the first occurring presystolic murmur was replaced by an early diastolic and a soft systolic murmur, the pulse at the same time becoming markedly irregular. The complete absence of any P wave in this curve was easily seen. It was a case of auricular fibrillation.

We have all known for many years that in cases of mitral stenosis the presystolic murmur can be replaced by an early diastolic, and most of us have regarded this as due to a state of asystole of the left auricle, but it was reserved to Dr.

Lewis, working with the string galvanometer, to show us how and why this was brought about; and in his hands the instrument, in demonstrating that auricular fibrillation is a clinical entity, has added a new and striking page to our knowledge of the clinics and pathology of the heart. I then exhibited the electrocardiogram of a case of mitral stenosis where there was some irregularity of the pulse, and where a long, faint murmur occurred, extending through the whole of the diastole without any crescendo as it approached the first sound. I was in doubt whether auricular fibrillation had been established in this case or not, and naturally one's prognosis depended upon this; but the presence of the well-marked auricular or P waves demonstrated that the auricle is still functioning normally. Two electrocardiograms were then shown, which frankly I do not understand: one from a case of congenital pulmonary stenosis, and showing an enormous P wave, a small R similar in size and shape to the P and a little T; the other from a case of aortic regurgitation so anomalous and extraordinary in appearance that I was anxious to see if any present could give me any explanation of it.

In conclusion, while I feel the string galvanometer will always have to be used by experts, I am convinced that it has a great future before it in clinical medicine, and naturally I have only been able to touch on a few of the instances and ways in which it can help us.

I am, Sir, yours faithfully,

S. RUSSELL WELLS.

Physiological Laboratory, University of London, March 30th, 1912.

*** Dr. Russell Wells's contribution to the debate which took place on March 19th upon Professor Einthoven's important paper did not reach us in time for publication. At our request he has embodied his words in a letter.—ED. L.

THE NOMENCLATURE OF DISEASES.

To the Editor of THE LANCET.

SIR,—Your leading article of March 23rd on the above subject raises a question of fundamental importance in medical science, but one that is open to debate and surely ripe for it. Before we name diseases it is clearly imperative to determine what we mean by "a disease." Sir Clifford Allbutt says that we derive such a concept as we call "a disease" from "a certain assemblage and succession of symptoms, normal and abnormal, recurring with fair uniformity." All reference to causation is thus excluded from the description of "a disease." On the other hand, I have described "a disease" as "a mental conception, drawn from the observation of a series of symptom-groups of determinate and similar causation." If we take three examples of universally recognised diseases—typhoid fever, lead poisoning, and heat-stroke—it can hardly be disputed that my description applies.

Surely our conception—to take a definite example—of "the disease typhoid fever" is based simply and solely on the correlation of a recurrent, recognisable symptom-group with the parasitism of a specific microbe. If this is so, then Sir Clifford Allbutt's description does not include the most essential characteristic of "the diseases" of parasitism, of poisoning, and of traumatism. But this is not all; his description not only fails fully to describe such diseases as typhoid fever, lead poisoning, and heat-stroke, but it admits to the category of specific diseases such indefinite conceptions as Hodgkin's disease, Graves's disease, insular sclerosis, glaucoma, psoriasis. If we compare two representatives, one from each group, such as typhoid fever and Hodgkin's disease, the fact is obvious that one conception stands for the correlation of a varying but characteristic symptom-group with a definite and constant cause, the parasitism of a specific microbe, while, on the other hand, even the semblance of correlated cause and effect is lacking in our conception of Hodgkin's "disease." Precisely the same specific term—"the disease"—is thus applied to two conceptions that are fundamentally different. This is a treacherous foundation for the nomenclature of diseases.

This differentiation of what I have called "true diseases" from "spurious diseases" is neither arbitrary, provisional, nor limited. It is based on the natural interpretation of disease, and is therefore true and permanent. The line may be drawn clearly and sharply throughout the whole science of medicine between those conceptions that are based on correlated cause and effect, and are therefore definite and reliable, and those other conceptions, not so based, which are therefore wholly illusory and misleading for the practitioner. By what right—scientifically speaking—is the same specific term, "the disease," applied to the members of two categories of conceptions that are essentially and demonstrably different?

I am, Sir, yours faithfully,

Clevedon, March 26th, 1912. SYDNEY W. MACILWAINE.

*** While there is considerable cogency in our correspondent's contention that a mental concept connecting the definite symptom-group with a known cause is essential to the accurate conception of a "disease," the exclusion from the class of "diseases" of every symptom-group of uniform recurrence of which the cause is not "determinate and similar," would result in an *impasse* from a practical point of view. What generic term, if not a "disease," would our correspondent propose to apply under ordinary conditions of speech to the symptom-groups cited by him—viz., "Hodgkin's disease, Graves's disease, insular sclerosis, glaucoma, psoriasis"? On the other hand, can we, under our correspondent's rigid definition, rightly call anything a "disease" where the micro-organism that is inferred to be its cause has not yet been identified? Its cause remains a supposition, however near to actuality it may be as a consequence of logical inference.—ED. L.

CLASSIFICATION IN GYNÆCOLOGY.

To the Editor of THE LANCET.

SIR,—I think that all who are interested in the science and art of gynæcology and obstetrics should be deeply grateful to Dr. W. E. Fothergill, of Manchester, who in his recent plea for a proper system of gynæcological classification and teaching, published in THE LANCET of March 30th, has forcibly pointed out how unscientific are the principles which underlie the method usually adopted. He expresses very admirably sentiments which I have held ever since I have had the responsibility of teaching students. From the first I perceived that the supposed difficulties attaching to the subject of gynæcology were due to the illogicality of the "anatomical" classification adopted in the text-books, so I adopted the pathological arrangement used in my book to which Dr. Fothergill very kindly alludes.

But before saying more upon the general aspect of the subject I would like to draw attention to a small error into which Dr. Fothergill has fallen in regard to the details of my method of general classification. He states that "in his 'Principles of Gynæcology' published in 1910 Dr. Blair Bell also used ten headings ....." in regard to gynæcological disorders. As a matter of fact, there are *ten chapters* but only *four headings*. Perhaps it would have been better to have divided my book into parts instead of chapters; but that is a very small matter.

My four pathological divisions are: (1) Disorders of the normal anatomical conditions; (2) disorders of the normal physiological conditions; (3) infective diseases; (4) tumours.

Under the first heading there are the following subdivisions:—(*a*) Congenital; (*b*) acquired: (1) injuries; (2) displacements. Under the second heading there are subdivisions (*a*) in regard to menstruation; (*b*) in regard to conception; and under the fourth heading subdivisions (*a*) retention and effusion cysts; (*b*) innocent neoplasms; (*c*) malignant neoplasms. I think my four main headings are more natural and logical (besides being easier for the student to remember—a point Dr. Fothergill insists upon) than the six which he has adopted in his excellent book on "Diseases of Women." Further, they will bear rigid scrutiny, and will be found to include everything in the right place.

I agree with Dr. Fothergill entirely when he implies that a perfect classification depends upon a complete knowledge of the subject. There is no doubt that many menstrual disorders, for instance, should be classified under diseases of the ductless glands, as I have endeavoured to point out, and our imperfect knowledge of the pathology of many other conditions—such, perhaps, as "membranous dysmenorrhœa"—

makes it difficult to assign to them a correct pathological position.

In the meanwhile I feel that my general classification is the simplest, most accurate, and most inclusive. Further, it will never require radical alteration, although I am quite ready to admit that in the future it may be necessary to revise it in *matters of detail*, as our knowledge becomes more perfect. With regard to what Dr. Fothergill says in reference to the inclusion of obstetrics in a gynæcological work, I think it is essential that such conditions as subinvolution, moles, &c., should be included. It would be better, of course, to blend in one work the whole of the two cognate and indivisible subjects, gynæcology (as it is called) and obstetrics. Then, strictly speaking, all abnormal obstetrical conditions would be included in subdivision (*b*) in my second main division; and normal labour would be considered under physiology, which forms the introduction to the study of the pathological conditions. I also think my chapter on Allied Morbid Conditions should be considered in an appendix, and a very necessary one it is. In it we can lucidly link up general conditions with diseases of the reproductive system. Operative treatment naturally concludes the work.

I trust, Sir, that Dr. Fothergill's paper and his hopes will meet with the attention and success they deserve. Like him, I have long pleaded for a scientific basis to the teaching of gynæcology. It is, as he so justly implies, "up to" all scientific gynæcologists, who have not already done so, to put their houses in order, and to bring their teaching up to date. I can assure him that, contrary to his expectation, candidates for *any* examination who have a sound pathological knowledge of their subject are much less likely to fail than those who have what I have elsewhere described as "the time-worn and too long honoured" method of misarranging the details of a subject which is perfectly straightforward if only it be considered logically and lucidly.

I am, Sir, yours faithfully,

Liverpool, March 31st, 1911. W. BLAIR BELL.

TRAINING AND ROWING.

To the Editor of THE LANCET.

SIR,—Last year[1] I drew attention to the fact that while the winning University crew of that year put on weight, the losing crew lost weight, during training. I notice that this year the Oxford crew have actually put on 16½ lb., while the Cambridge crew have lost 10½ lb. From this I should expect the former to possess the greater staying power. The following are the figures:—

Oxford.	lb.	lb.
Bow	+ 2½	
2	+ 4	
3	+ 6½	
4	− 3	
5	+ 8	
6	—	
7	− 5	
Stroke.....	+ 3½	
	+ 24½ − 8	= 16½ lb.

Cambridge.	lb.	lb.
Bow	− 1	
2	− 5½	
3	+ 2½	
4	+ ½	
5	− ½	
6	− 4	
7	+ 1½	
Stroke.....	− 4	
	+ 4½ − 14½	= 10½ lb.

It is interesting to observe that No. 5 Oxford has actually trained up from 13 st. 3 lb. to 13 st. 11 lb., putting on 8 lb.; also that the Oxford stroke has put on 3½ lb., while the Cambridge stroke has lost 4 lb.

I am, Sir, yours faithfully,

Wimpole-street, W., March 31st, 1912. HARRY CAMPBELL.

THE NATIONAL MEDICAL UNION.

To the Editor of THE LANCET.

SIR,—Allow me to draw attention to the unwarranted remarks of Dr. Stenhouse in the report respecting the meeting of the National Medical Union. The article "corrects" the impression in medical journals that Dr. Helme is the originator of the Medical Union.

Why does the writer take the trouble to correct such an impression? Who claims the credit of it? I am not aware that Dr. Helme claims it. But if he be not the originator of that Union no one else has an equal right to claim. As a matter of fact, had it not been for his speeches and enthusiasm that Union would not have been formed at all, or if formed would have been a puny weakling incapable of growing to maturity. I was present at the mass meetings and know the feeling of many of the audience. Both I and my colleagues, without exception, pinned our faith to Dr. Helme and became members of the Union solely on his account.

No one expresses our views better and no one is more suited as our leader. In fact, we should miss his influence more than that of the whole committee put together.

I am, Sir, yours faithfully,

Manchester, March 30th, 1912. R. B. FLETCHER.

*** The report published in THE LANCET was forwarded to us by Dr. Stenhouse at the request of the committee of the National Medical Union.—ED. L.

[1] THE LANCET, April 8th, 1911, p. 968.

COAL SMOKE ABATEMENT.

To the Editor of THE LANCET.

SIR,—In your leading article on this subject in THE LANCET of March 30th you state that gas companies and electricity supply undertakings vie with each other in bringing before the notice of the community the special advantages of their systems. This is true, and yet by their injudicious advocacy they do more to stop the use of their apparatus than could be effected by any opposition. The gas companies still persist in stating that flueless gas-stoves can be used in rooms without detriment, and even instal them, with the result that the sale of properly arranged stoves is stopped. The gas radiators fitted by a gas company in the corridors of a hotel known to me must have produced hundreds of opponents to gas heating.

Similarly, the electric companies always quote the running cost of their apparatus as though electricity was to be bought by the ordinary consumer at a fraction of a penny per unit instead of 4*d.* or 6*d.*; and even if a cheaper power tariff is available yet the capital expenditure and inconvenience of separate wiring has to be reckoned with. The fact that the subject of domestic electrical supply is being discussed and investigated, at the instigation of their President, by the Society of Electrical Engineers is, however, of hopeful augury for the future.

I am, Sir, yours faithfully,

CHARLES SLATER.

St. George's Hospital, S.W., April 1st, 1912.

ACUTE INTESTINAL OBSTRUCTION CAUSED BY THE APPENDIX.

To the Editor of THE LANCET.

SIR,—The account of a case of acute intestinal obstruction, published in THE LANCET of March 23rd by Mr. E. Gillespie, interested me very much, as in 1909 I had under my care a case almost exactly similar. The illustration accompanying the article is very nearly an exact representation of the condition of things in my case, with the exception that the appendix went the opposite way round the gut and the loop was the last 10 inches of the ileum.

The history was practically the same, also the condition on examination. The patient, a boy aged 8 years, had been very ill for a week before I saw him. Acute intestinal obstruction was diagnosed, but on opening the abdomen the condition was as in Mr. Gillespie's case. In my case the appendix was gangrenous, and part of the bowel was so injured by the strangulation that I invaginated it with a row of sutures. I am glad to say that the boy recovered. The strangulated gut was found up against the edge of the liver.

I am, Sir, yours faithfully,

W. F. CHOLMELEY, F.R.C.S. Eng.

Wolverhampton, March 28th, 1912.

THE "CHOLERA BELT."

To the Editor of THE LANCET.

SIR,—Your correspondent "Anglo-Indian" asks the opinion of Indian officers as to the value of the cholera belt in tropical countries. Though I am not an Indian officer, I venture to report my experience. When I first went to the tropics I scoffed at the idea of wearing a cholera belt, but constantly recurring attacks of diarrhœa led me to

give this garment a trial. After experimenting by wearing one (1) by day only, (2) by day and by night, (3) by night only, I came to the conclusion that the last was sufficient to prevent such attacks. I have very often met men, and I think they are a large majority, who have never worn a belt and apparently have never required one. To these a cholera belt is a fad. A daily temperature variation between maximum and minimum of 30° F. is by no means uncommon in parts in which I have served, and it is in these places that mild intestinal disturbances chiefly occur. I have more than once been told by laymen that by leaving off the cholera belt at night much the same result is obtained as follows the taking of a large dose of salts. The value of the cholera belt, in relation to cholera and dysentery, appears to me to lie in its preventing the formation, by protecting the abdomen from chill, of sites of lowered resistance, in which the organisms of these two diseases could thrive and flourish.

I am, Sir, yours faithfully,

London, April 1st, 1912. V. S. HODSON.

THE PROTECTION OF FOWLS.

To the Editor of THE LANCET.

SIR,—My attention has been called to an article in your issue of March 16th with regard to the protection of fowls from suffering. I think the writer of the article must have been under some misapprehension as to the present state of the law. Under the Protection of Animals Act, 1911, the word "animal" means "any domestic or captive animal," and "domestic animal" means "any horse, ass, mule, sheep, bull, pig, goat, dog, cat, or *fowl*," and "fowl" includes "any cock, hen, chicken, capon, turkey, goose, gander, duck, drake, guinea-fowl, peacock, peahen, swan, or pigeon."—I am, Sir, yours faithfully,

E. G. FAIRHOLME,
Secretary, Royal Society for the Prevention of Cruelty to Animals.

March 30th, 1912.

*** We regret the error.—ED. L.

THE PRESENT POSITION OF SALVARSAN.

To the Editor of THE LANCET.

SIR,—In spite of the eminence of the introducer of the salvarsan treatment of syphilis, the solid scientific basis on which it appeared to rest, and its marvellously rapid effects, like all vaunted new remedies (I might say proprietary remedies) this drug has failed to maintain its claims. Where is the *sterilisatio magna* which we were told could be accomplished by a single dose? The advocates of the treatment now resort to several doses and still are not able to prevent relapses. So great is their confidence in the treatment that they recommend that it should be followed by the disparaged mercurial course! Turning to the question of safety, the position is equally unsatisfactory. Deaths following its administration are now constantly recorded, and reports come from all over the world that many are never recorded. The earlier deaths were attributed by Ehrlich to the use of the drug in unsuitable cases, when contra-indications which he has laid down, such as organic disease of the nervous or cardio-vascular system, were present. Admitting this explanation, for the sake of argument, it is only one proof of the dangers of the drug. For in several of the recorded cases the patient showed no signs of the lesion found after death and held responsible. Thus in the case reported by Professor Oltramare, of Geneva,[1] a robust man who had contracted syphilis 15 years before, desired an injection of salvarsan, although he was free from symptoms. A complete examination revealed no signs of disease. He was given a single intravenous injection of 60 centigrammes, which was well borne. On the third day he complained of headache, and on the fourth day died comatose after several attacks of convulsions. Two of the supporters of the salvarsan treatment[2] ask why not throw some of the blame on the lepto-meningitis, chronic bronchitis, and broncho-pneumonia which were found post mortem. Excepting the bronchitis, the evidence is that these lesions were due to the drug. In any case the argument is irrelevant as regards safety, for the man was on examination found not only healthy but robust. Several other cases have been recorded in your columns in which ordinary doses of salvarsan proved fatal to young robust patients.[3] We are unfortunately familiar with the symptom-complex of coma, epileptiform convulsions, and death—termed by Sicard meningotropism—as a result of the injection of salvarsan, and it corresponds exactly to the nervous form of acute arsenical poisoning. Indeed, Mr. Foerster (an advocate of salvarsan by the way) says that it is "inexplicable except as acute arsenical poisoning."[4] It is curious that it most frequently has been observed after a second dose. At a meeting of the Société Médicale des Hôpitaux of Paris on Nov. 17th last M. Paul Ravaut discussed a series of eight such fatalities, one of which occurred in his own hands. In all a young robust patient without visceral disease was given an ordinary dose of salvarsan which was well borne. After a varying interval a second dose was given and was followed by vomiting, pyrexia, epileptiform convulsions, coma, and death. The necropsy showed congestion of the brain and other organs, and sometimes small hæmorrhages into them. In three other and non-fatal cases an erythematous eruption appeared after the second injection. The advocates of salvarsan attribute them to cumulation. M. Ravaut was compelled to reject this explanation, for in some of the cases the doses were small and the interval between them was many days. Thus, in one fatal case two doses of only 40 centigrammes were given at an interval of 40 days. As to the theory of Wechselmann, recently maintained in your columns,[5] that such symptoms are due to microbes in the distilled water used for dissolving the salvarsan, M. Ravaut points out that he always uses filtered water, sterilised at 120° C. Moreover, in two of the cases the same solution was used for other patients who manifested no symptoms. The only conclusion is that the ill results were due to some idiosyncrasy. Possibly the first injection causes some modification, which leads to decomposition of the second dose. It is not generally realised that an ordinary dose (60 centigrammes) of salvarsan contains such a large quantity of arsenic as 3 grains. It is true that, as in the cacodylates and other organic compounds of arsenic, quantities of arsenic otherwise poisonous can be given in salvarsan usually with impunity, but we have no guarantee that such compounds may not sometimes decompose in the body, setting free a toxic amount of arsenic. On the contrary, we now have evidence that this does occur. In addition to the form of arsenical poisoning just described, commoner and characteristic toxic effects have been observed—acute fatal nephritis,[6] fatal jaundice,[7] herpes zoster, erythema, melanosis, conjunctivitis, vomiting, diarrhœa, and muscular cramps. In the paper referred to above suggesting that the toxic symptoms following the administration of salvarsan are due to microbes in the distilled water, the writers have produced evidence only that the immediate and temporary symptoms following the injections—rigors, rise of temperature, and malaise—are due to this cause. They have produced no evidence that symptoms of arsenical poisoning can be so produced. In the extensive use of saline injections in surgery, without the elaborate precautions now enjoined to keep the solution microbe-free, has anyone observed arsenical poisoning or, excepting cases where enormous quantities have been administered, any serious effects whatever? Finally, take the theory that the toxic symptoms are due to endotoxins set free in the destruction of the spirochætæ. If true, this would only be another admission of the dangerousness of the drug, for who can gauge the amount of endotoxin that will be set free? But, as Professor Finger has shown, similar symptoms follow the use of the drug in psoriasis and leprosy. One gets impatient of these ever-changing "explanations" which do not explain, and are only attempts to square the facts with the erroneous teaching that salvarsan is innocuous when given according to rule. They are an insult to the intelligence. I submit that in the routine treatment of syphilis salvarsan has shown no advantage over mercury except rapidity of action; that in permanency it is less reliable; and, therefore, that it is unjustifiable to expose patients to its undoubted

[1] THE LANCET, Feb. 24th, 1912, p. 537.
[2] Ibid., March 2nd, p 609.
[3] Ibid., Dec. 23rd, 1911, p. 1785.
[4] Ibid., Feb. 3rd, 1912, p. 288.
[5] Ibid., March 9th, p. 637.
[6] Ibid., Oct. 14th, 1911, p. 1065, and Feb. 24th, 1912, p. 537.
[7] Ibid., Dec. 23rd, 1911, p. 1785.

risks. It may have a place in exceptional cases which do not yield to mercury.—I am, Sirs, yours faithfully,

March 3th, 1912. DUBITANS.

*** There is much force in our correspondent's contentions, but, as our columns show, there is powerful evidence of the benefits of salvarsan. For the present we must not be too dogmatic.—ED. L.

MOTORING NOTES.

(FROM A SPECIAL CORRESPONDENT.)

The Prohibition of Cut-outs.

As a result of the recent and proper agitation against motor-car noises the Local Government Board have made a new order which came into force on March 31st. This provides that every person driving or in charge of a motor-car when on any highway shall not use any cut-out fitting or device which will allow the exhaust gases from the engine of the motor-car to escape into the atmosphere without first passing through a silencer or other contrivance suitable and sufficient for reducing, so far as may reasonably be practicable, the noise which would otherwise be caused by the escape of the said gases. This regulation only applies to motor-cars propelled by an internal combustion engine and does not extend to motor-cycles, though the Board are considering the practicability of requiring these to be also provided with a suitable silencer. Those motorists who employ the popular "Gabriel" horn need not be disturbed by this order as the prohibition does not apply to the "cut-outs" used in connexion with this form of hooter. It is usually advisable, however, to fit the "Gabriel" after the silencer, but in the few cases where the latter has not an outlet tube the valve may be fitted in front, provided some wire screen is placed in the piping to reduce the pressure and to prevent the horn from shrieking. Speaking of this form of "road clearer" reminds me that Messrs. Brown Brothers, Limited, will be pleased to supply free of charge to all users a special prick which they have introduced to clean the "language plate" of the horn; this clears out any soot much better than such dangerous instruments as chisels or files.

The Hammersmith Speed Limit Inquiry.

A local inquiry was recently held at the county hall to consider an application made by the London County Council for the imposition of a five-mile speed limit at Hammersmith Broadway and its immediate approaches. The Royal Automobile Club and the Automobile Association opposed the proposition, arguing that the traffic conditions in that particular place varied to such an extent that it would be impossible to prescribe any speed which would represent the maximum of safety under all conditions. It was pointed out that a five-mile limit would inevitably create a state of congestion, because it would prevent advantage being taken of the superior speed and mobility of motor vehicles. The representative of the Commissioner of Police of the Metropolis was of opinion that no improvement would be effected by the suggested limit, and that, on the contrary, there would be decided disadvantages, for the volume of traffic was considerable, and therefore to avoid obstruction the traffic should be passed through the Broadway as quickly as possible. This application is undoubtedly of great importance, as the decision of the Local Government Board will probably operate as a precedent in future petitions for reduced speed limits in respect of the arterial thoroughfares of London.

Of course, the dangers of motor traffic in crowded areas are influenced by speed; but where real speed is out of the question it is probable that ten miles an hour may be safer for the public on account of its flexibility than an arbitrary five, and that varying speeds, such as those of a crawling cab and heavily-laden goods vans, going slowly and preventing a pedestrian from avoiding a motor coming more quickly, constitute a greater danger. Other points raised were that it would be impossible to enforce the speed limit by timing owing to the distance not being sufficient, and that the police have ample powers under the existing Act dealing with driving to the common danger to take action if they think needful. The matter is under the consideration of the Local Government Board; it certainly does not seem desirable that a fixed five-mile limit should be granted.

A Means for Waterproofing and Renovating Cape-Cart Hoods

Nearly every motorist whose car is fitted with a Cape-cart hood has experienced annoyance caused by wet penetrating through weak spots in the hood, or displeasure at the appearance of the hood after it has been in use for some time. A most satisfactory remedy has recently been introduced, of which medical motorists may like to learn. It is the "Accordion" flexible paint, and can be had from Messrs. Brown Brothers, of Great Eastern-street, London, in buff, brown, black, and grey colours. It is easily applied by means of a stiff brush, and usually one coat is enough to render canvas or leather waterproof, but a second coat gives the material a smooth surface, and it can then be easily sponged down and cleaned. I do not know of anything that detracts from the appearance of a car more than a shabby, leaky hood, which this preparation undoubtedly cures.

Regarding Ball-bearings, Especially on Front Wheels.

It is admitted now, I believe, that ball-bearings create less friction than plain bearings. Plain bushes on front wheels do not require much attention, but those cars which have the cycle type of ball-bearings should receive occasional inspection. By the cycle type I mean those in which the cone is on the axle and the cup fixed in the hub of the wheel. In such cars, should the cone wear or a ball break, the rest of the balls may come off the race, with probable damage to the hub and wheel. To obviate this, when the car is washed, the wheel should be examined for any "play," and if any is found the wheel should be withdrawn and the cup, cone, and balls inspected. Another cause of failure, especially on front wheels, is the admission of moisture, which tends to shorten the life of a ball-bearing, and that is why, though they are almost frictionless, and thus lubrication should be a negligible quantity, grease should be employed, not so much to lubricate as to keep out all moisture. In the cycle type, too, the difference in the speed at which the balls travel, caused by the deflection of the balls as they go round under the loaded surface, is apt to cause intense friction on the cone, so that flats may form, and then trouble is bound to ensue. This can be prevented by mounting the balls in cages, as is done by Messrs. Hoffmann and the Tormo Manufacturing Company, and provided these are properly mounted and protected from wet they are in every way reliable.

Weather Reports.

For the convenience of their members contemplating "day runs" out of London, the Automobile Association and Motor Union have arranged for information as to the weather conditions prevailing, probable outlook, and state of roads, to be telegraphed to the head office every morning from the various points on the main roads round London:—*South-East:* Canterbury (Dover Road), Folkestone, Robertsbridge (Hastings Road). *South-West:* Southampton, Marlborough (Bath Road), Bath. *North-West:* Warwick, Fenny Stratford. *East:* Colchester. *South:* Eastbourne, Brighton, Arundel, Hindhead (Portsmouth Road). *West:* Gloucester, Oxford. *North:* Grantham, Buckden (Great North Road), Newmarket. The information will be available to members at 9 A.M. upon application either by telegram or telephone, both week-days and Sundays.

WALES AND WESTERN COUNTIES.

(FROM OUR OWN CORRESPONDENTS.)

School Clinics.

THE education committees of Cardiff and Swansea each have under consideration the question of providing school clinics. In a report presented to the Cardiff committee by Dr. E. Walford, the school medical officer, it is pointed out that the arrangements for attending to the health of school children cannot be regarded as satisfactory until it is possible to secure prompt and efficient medical treatment in a thoroughly up-to-date clinic, in addition to the efforts of school nurses, teachers, and school attendance officers. A certain number of parents complied with the notices sent them drawing their attention to the health of their children and to the need for medical treatment. But even when treatment was obtained after persistent following up by the school nurses it was not altogether satisfactory, for in many instances it was not carried out continuously or effectively

either through the carelessness of the parents or from want of means. He recommended that a complete school clinic should be established in Cardiff at an estimated cost of £250 for equipment, and at an annual cost of £90. After considering the report for several hours the committee called for a further report as to the probable cost of adopting either of the following schemes: (1) treatment by general practitioners; (2) treatment by specialists; (3) treatment by the medical staff of the education authority. The Swansea education authority has received a report from the school medical officer, Dr. Thomas Evans, in which he states that the stages in the development of school medical inspection and treatment are—routine medical inspection, following up, an inspection clinic, a general clinic, and a fully developed school clinic. Within the past few weeks "following up" has been started in Swansea. A school nurse visits the home of a child who has been found by the school medical officer to require treatment and gives advice to the parents as to the necessity for and the means of obtaining treatment. An inspection clinic has also been established at one school, and three more are recommended by Dr. Evans. In these it is proposed that there shall be a fuller examination of special cases by the school medical officer, who will also examine children submitted by the head teacher, the school nurse, or the school attendance officer, and special eye-testing will be carried out. At the general clinic, which would be a development of the inspection clinic, there would be daily treatment by a nurse, under the supervision of the medical officer, of cases of skin disease, ringworm, scabies, verminous heads, sore eyes, and running ears. At the fully developed clinic, which would really be a municipal hospital out-patient department for children, there would be special medical and surgical treatment of the throat, nose, ear, teeth, deformities, and X ray treatment for ringworm. In addition there might be special treatment of children suffering from pulmonary tuberculosis.

The Vaccination Question.

The guardians of the Wirral union (Lancashire) have sent a resolution to the boards of guardians in the West of England pointing out the menace of unvaccinated persons, and urging that the facilities at present granted for exemption from vaccination of infants should be withdrawn, and that vaccination of infants should be insisted upon unless for some very special reason. The Wirral guardians suggest that the Local Government Board and Members of Parliament should be approached upon the subject. The Bristol guardians discussed the matter on March 8th, and although more than one-third of the infants born in that city annually are "exempted," it was decided, with only two or three dissentients, to "let the letter lie on the table." The guardians of Barnstaple (Devon), St. Thomas (Exeter), Newton Abbot (Devon), Holsworthy (Devon), and Yeovil (Somerset) have taken a wiser course, and all decided to support the resolution.

The Torquay Isolation Hospital.

At the Torquay county court, before his honour Judge Lush-Wilson, K.C., the Torquay corporation recently applied for costs in the county-court action when an ex-policeman sued the corporation for £50 damages for the loss of his son, who died after having been treated for scarlet fever at the local isolation hospital. Allusion was made to the case in THE LANCET,[1] and at the first trial the man gained his case, and was awarded £50 damages. On appeal it was held that the claim could not be upheld, because the case "had not been brought within six months of the date of the cause of the action." On further appeal this was upheld in two of the higher courts, and at a recent county-court trial a final verdict was given in favour of the corporation. His honour deprived the defendants of their costs, and ordered them to pay the plaintiff the costs of the evidence upon which he had succeeded. His honour said the evidence showed that the servants in the hospital were negligent, adding that the people representing the corporation did not exercise proper care in the selection of the servants at the hospital.

The Devon Queen Victoria and King Edward Funds.

Lord Clifford of Chudleigh presided at a recent meeting of the executive committee of these funds. It was stated that the income amounted to £349, and it was decided to distribute it amongst the following medical institutions:—Ashburton Hospital, Bideford Hospital, North Devon Infirmary, Ockenden Home, Ottery St. Mary Hospital, Royal Albert Hospital, Royal Devon and Exeter Hospital, Tiverton Infirmary, Torbay Hospital, West of England Eye Infirmary, the Devon County Nursing Association, Torquay, the Exeter Nursing Institution, and the Crediton Anti-Consumption Association.

[1] THE LANCET, May 6th, 1911, p. 1233.

The Dorset County Hospital.

At the annual meeting of the subscribers of Dorset County Hospital the medical report showed that during 1911 the in-patients numbered 439, and 856 out-patients and 236 "casualties" were treated. The financial statement showed the income amounted to £2558 and the expenditure was £2417.

The Markham Skerritt Memorial.

The sum of £337 has been subscribed towards the memorial fund for the late Dr. Markham Skerritt, who was for many years professor of medicine and Dean of the Faculty at University College, Bristol. It was at first hoped that sufficient money would have been obtained to endow the chair of anatomy at Bristol University, but as this was not forthcoming it was decided to forward the amount collected to the University authorities, for the object of establishing a biennial prize for original work in medical science.

The late Dr. William Pearse, of Plymouth.

The widow of the late Dr. W. Pearse has presented a life-sized portrait in oils of her husband to the Plymouth Athenæum, an institution in which the deceased took much interest and of which he was at one time president. The painting is the work of Mr. Fellowes Prynne, R.B.A., and will be placed in the lecture-hall of the building.

April 1st.

SCOTLAND.

(FROM OUR OWN CORRESPONDENTS.)

Edinburgh Hospitals and the Coal Strike.

INQUIRIES as to the effect of the strike upon the chief infirmaries and hospitals of Edinburgh and Leith show that there has been no unusual demand upon the beds, and that the proportion of men, women, and children applying for admission have not been materially disturbed. The scarcity of coal has already made itself felt in the administration of the Royal Infirmary, the Deaconess Hospital, and Leith Hospital, and to a very slight extent at the Sick Children's Hospital, where extra firing has been stopped. At Chalmers' Hospital the reserve of coal is nearly exhausted. In all of these institutions yearly contracts for food are in force, and the strike has consequently not affected the supply of provisions.

Tuberculosis Exhibition and Suggested Sanatorium for Aberdeen.

The attendance during the seven days of the Tuberculosis Exhibition in Aberdeen has been the highest in the United Kingdom, with the exception of Hull, where 46,000 visited the exhibition in seven days. In Aberdeen 38,964 visited the exhibition, and in addition the five lectures which were given in another hall attracted large audiences, many having to be turned away. Large quantities of literature were also sold. Professor Matthew Hay, medical officer of health for the city, delivered the last lecture on March 26th, when he remarked on the large proportion of the working-classes who had visited the exhibition. He proved by statistics that pauperism and the death-rate from tuberculosis had fluctuated at the same rate during the last 60 years. In Aberdeen housing had much improved, though it was noticeable that in many of the new houses in Torry the death-rate from tuberculosis was high. Fishermen, who mainly inhabited those houses, Dr. Hay thought were probably more liable to the disease. A sanatorium was wanted in Aberdeen, and he estimated the cost, less Treasury grants, at £10,000, and the annual upkeep at £8100, roughly speaking. He took it that the cost would fall on the municipality, because the Treasury would not make a grant without a considerable contribution from the local authority. At present Aberdeen is paying annually £3250 for the treatment of tuberculosis, so that the additional annual expenditure would be £5000, or 2*d.* upon the present taxes. The present public health rate in Aberdeen is about 5*d.*, and Dr. Hay remarked, "not speaking as a rabid teetotaler," that when one

considered that last year, or the year before, the average expenditure upon alcohol was something like £2 11s. per head, the extra 2d. would be the merest trifle. If, after the example of the Salvation Army, we could have a self-denial week from alcohol, more than the needed amount would be raised. Lord Provost Maitland congratulated the public health committee, and more particularly Professor Hay upon the success of the exhibition.

April 1st.

IRELAND.

(FROM OUR OWN CORRESPONDENTS.)

The Strike and the Irish Hospitals.

THE immediate effects of the coal strike on the Irish hospitals do not seem to be very serious at present. From inquiries made among the Dublin hospitals it would appear that there has been no increased demand for hospital accommodation among men, women, or children; that while several of the hospitals are working with insufficient heating owing to the high price of coal, others are not, so far, suffering even from that inconvenience, owing to their having laid in a sufficient stock of coal early in the winter; and that the high price of provisions has not as yet caused any serious inconvenience. From Belfast also the report is much the same. In none of the four hospitals, numbering altogether 2419 beds, has there been any increased demand for accommodation. Owing to the absence of a strike clause in the contracts of the Union Infirmary and Fever Hospital the heating appears to have been entirely unaffected, while the Royal Victoria Hospital, whose contracts contain such a clause, has had to purchase coal at a much higher price. The Abbey Sanatorium and the Mater Infirmorum hospitals have fires in the wards as usual, but their central heating plants are not in use. There does not appear to be any increase in the price of food.

Ulster Hospital for Children and Women.

At the annual general meeting of this deserving charity, held on March 26th, it was reported that there were 163 intern children's cases and 2061 extern (of whom 471 were ophthalmic) during the year. In the women's department there were 69 intern and 623 extern patients; and there were 229 maternity cases. The income of the hospital was £1352, and at the end of the year the balance in favour of the hospital amounted to £210. Additional subscriptions (£191) have been received to the building fund, and about £100 have been given to the equipment, so that the hospital has continued to make progress as regards the annual subscription list, always the mainstay of any voluntary charitable institution.

Royal Victoria Hospital, Belfast.

At the annual meeting of this important charity, held on March 27th, it was reported that during 1911 there had been admitted to the wards 3370 new cases, while in the extern department 33,947 patients had been treated. Altogether 37,549 new cases had been seen during the 12 months; 150 more intern and 800 more extern cases were treated during the year. The revenue receipts for the year exceeded the revenue expenditure by £343. The outstanding fact in the accounts is the large increase of £500 in the subscriptions from workpeople. The report indicates that there are fears that in the future, as a result of recent legislation, there will be a falling off in the subscriptions both from employers and workpeople.

The Medical Profession and Vaccination.

At a combined meeting of the Ulster Medical Society and the Belfast division of the British Medical Association, held in the Medical Institute, Belfast, on March 29th, a discussion took place in reference to matters recently brought out in public about the vaccination question, and it was decided to appoint a deputation to appear before the Belfast board of guardians to-day, April 2nd. A discussion also arose about certain clauses referring to midwives (Part VIII.) of the Belfast Corporation Act of 1911, and a strong committee was appointed to look into the matter with the view of advising the public health committee of the city corporation, who, apparently, following an unfortunate precedent in high quarters, have drawn up provisions on medical questions without first consulting the medical profession itself, with the natural result that they now find themselves in difficulties about the practical interpretation and working of their Act.

April 2nd.

PARIS.

(FROM OUR OWN CORRESPONDENT.)

Heliotherapy in Surgical Tuberculosis.

AT the Société de Pédiatrie M. Armand Delille recently related the remarkable results observed by him in cases of bone and joint tuberculosis in sanatoriums situated at great altitude, in which treatment by exposure to the sun for six or eight hours, the patient being absolutely nude, is carried on. The most notable result is the speedy amelioration of the general condition and the restoration of a vigorous appetite, of gaiety and vivacity. A local cure follows. These happy results having been confirmed by M. Rist and M. Nageotte, the society appointed a committee to investigate the matter. It suggested that heliotherapy should be studied and developed, as an important adjuvant of thalassotherapy at the marine cure stations; it called on the Assistance Publique to consider the possibility of establishing, in the French Alps or the Pyrenees, an altitude station at which heliotherapy could be employed at all seasons, but especially in winter, in those cases of tuberculosis which did not well bear the marine cure. It further urged that during the carrying out of this project the city of Paris should send some cases of multiple bone tuberculosis, which were considered incurable after a stay at the Hôpital Maritime de Berck, to the Swiss heliotherapy establishments.

Salvarsan and Auditory Troubles.

The inconveniences as well as the advantages of salvarsan are now constantly being studied and discussed in medical societies. At the Société Médicale des Hôpitaux, on March 15th, M. Milian considered that it is now established that salvarsan does not affect the optic nerve. Its action on the auditory nerve, on the other hand, is a moot point. The auditory troubles of syphilis can be divided into four classes so far as they relate to the use of "606." In the first place we have cases in which the auditory apparatus is affected by the syphilis prior to treatment by "606." In two cases observed by M. Milian of lesion of the Eustachian tube, and in a case of syphilitic labyrinthitis, the administration of "606" brought about cure or amelioration. Next come cases in which auditory troubles supervening in the course of treatment are independent both of the syphilis and of the "606" (such as cerumen, polyps). Then there are the cases of syphilitic nerve relapse (*neuro-récidives*). The author has seen five such cases out of 1200 persons undergoing treatment. They consist almost always of lesions of the auditory nerve supervening during the secondary period, from two to five months after the use of the "606," and in the absence of any fresh treatment. These troubles are accompanied by vertigo and by other lesions of the cranial nerves, especially facial paralysis. This coexistence of a lesion of the cranial motor nerves is characteristic of syphilitic relapses. Finally, in seven cases there were troubles of hearing attributed to "606." These troubles developed in the course of treatment from 24 to 36 hours after the injection. The result was incomplete deafness, generally unilateral, which lasted from some days to two weeks, and was entirely cured without leaving any trace. It is easy to obviate these accidents by graduating the doses and by avoiding the use of strong doses at the outset. Their superficial nature suggests that they are simply congestive phenomena and not true toxic lesions.

The Housing of Servants.

M. Charles Guillard having made the report called for on this subject by the municipal council of Paris, the council, in conformity with his conclusions, has adopted resolutions calling on the administration to exact rigorous compliance with the prefectoral decree relating to the lodging of concierges; to forbid the habitation of all quarters not lighted and ventilated with a window, as required by the public health law of 1902; to forbid *chassis à tabatière* in bedrooms situated in the garrets or elsewhere, and to apply rigorously all the hygienic regulations to lodgings occupied by concierges, domestics, and indoor employees. The council further urges on the attention of

legislators and of the Government the extension to concierges and domestics, as well as to other classes of workers, of the law relating to accidents of labour.

The Mortality among Liquor-sellers.

Dr. Jacque, who has occupied himself for a long time with the liquor problem, has been inquiring into the mortality among liquor-sellers and publicans, as set forth in the vital statistics of France, Switzerland, and England. In France, unfortunately, no precise information is forthcoming, except for Paris. While 1000 adult males between 30 and 49 years of age show an annual mortality of 36, the mortality of 1000 publicans reaches 47. In Switzerland the corresponding figures are 28·5 and 42·91. Leaving tuberculosis aside, one finds a mortality of 7·30 among all adult males and 14·19 among publicans. The English statistics show a far higher mortality among the publicans.

The Scavenging of Paris.

The Société des Amis de Paris has commenced a series of weekly conferences on the beauties and the defects of the city. It inaugurated the series on March 21st with an address by M. Blanchard, professor of parasitology, on the Scavenging of Paris. A long time ago Professor Blanchard proposed, seeing the impossibility of attacking the distributors of handbills, that those who throw paper on the ground should be regarded as soiling the streets. A recent ordinance of the prefect of police has realised this idea. Professor Blanchard particularly urged that control should be established over the dog, which harbours in its intestines the tænia echinococcus, the eggs of which are found in great numbers in its dejecta. These eggs become an integral part of the street dust or mud, which may become ingested when brought into the house on the boots or deposited on foodstuffs exposed for hours on the tradesman's counter. Hydatid disease is not only very serious, but very widespread in France. Dogs, therefore, should no longer be allowed to contaminate the streets. As foodstuffs, too, are liable to become contaminated by all sorts of germs, tuberculosis, diphtheria, and, perhaps, measles and scarlet fever, to say nothing of the eggs of the tænia echinococcus, their exposure to the street dust in front of shops should be forbidden under penalty of a fine.

The Hospital of the Future.

Professor Pozzi gave an address at the Lyceum on March 28th on the Hospital of the Future, in which he showed on the screen photographs of the interesting things he had seen in his extensive travels. What he termed the greatest clinic in the world, that of the Mayo brothers at Rochester, Minn., was shown, with its beds supplied with ingenious moveable tables which can be folded back above the patient's head and let down to rest on the bed for eating. He also spoke of the ventilation of hospitals and of the necessity for constructing hospitals not in the centre of towns, but at the circumference, because of the always possible contagion. Finally, hospitals, he said, should not be constructed like monuments, but lightly enough to be demolished without hesitation at the end of 50 years; for it was necessary to anticipate the improvements that the progress of science inevitably brings in its train. He condemned the system of isolated pavilions for each of the infectious diseases, on the ground that it was recognised to-day that these pavilions were more harmful than useful. He believed that in the wards reserved for measles the germs very quickly acquired an especially malignant character. At the present time we ought to return to the use of simple boxes, which, with proper precautions, obviate the dangers of contamination. He was in favour of one-storey buildings. Finally, he held that the insane asylums need very considerable improvements.

April 1st.

VIENNA.

(FROM OUR OWN CORRESPONDENT.)

Treatment of Leukæmia by Thorium.

AT a recent meeting of the Vienna Gesellschaft der Aerzte Dr. Falta read a paper which was a joint communication by himself, Dr. Krieser, and Dr. Zinner, dealing with the use of thorium in cases of leukæmia. It was stated that this substance disintegrated readily into mesothorium and an emanation of a nature similar to that of radium. The authors found by experiments on animals that subcutaneous or oral administration of thorium—preferably the first method—quickly diminished the number of leucocytes, and that after large doses the leucocytes simply disappeared. If they injected 2½ millions of units as defined by Mache, the animals soon died with signs of poisoning, and the post-mortem examination showed that the spleen was small, hard, and fibrous, with absence of the pulp and follicles. Thorium had a selective action upon the lymphatic system, and in small doses it was harmless. The authors of the communication treated four patients suffering from leukæmia, in all of whom the number of leucocytes at first rose after the injection and then fell. In the first case the fall of the leucocytes per cubic millimetre of blood was from 1,700,000 to 400,000 and afterwards to 20,000; subsequently they rose again to 180,000, but by repeated injections were kept at 50,000. In a girl of 17 years, suffering from myeloid leukæmia, the leucocytes fell from 1,000,000 to 150,000, and eventually came down to their normal number. The subjective condition of the patients always improved, but the cases have not yet been under observation long enough to determine whether these changes for the better will be permanent or not. It must be added that in cases where X rays were ineffective thorium succeeded in bringing the number of leucocytes down to near the normal limits.

A "Lourdes Miracle" Tested in an Austrian Court of Law.

Some time ago an Austrian village priest named van der Bom published a paper describing what he called "a real miracle of our own days." The case was one of fracture of the leg which had existed for eight years and had been declared by medical men to be incurable, but the patient was nevertheless said to have been suddenly cured in Lourdes. In his paper the reverend gentleman offered to pay a sum of 1000 kronen (£40) to anyone "who would either explain this miracle in a natural way or show that it was not true." Dr. Aigner, a general practitioner in Munich, claimed the 1000 kronen, and it was proposed to form an arbitration committee in presence of which he promised to show that the miracle was not true. As the priest made difficulties in regard to the chairman of this proposed committee, Dr. Aigner consented to accept a bishop of a German diocese (of course a Roman Catholic) as chairman. The priest, however, refused to have the "miracle" publicly investigated, neither would he consent to an examination of it by the court, as was suggested by the newspapers, which naturally took an interest in the proceedings, as nearly all the correspondence was regularly published in one of the leading German dailies. In repeating his offer of the reward the priest used such language against the medical man that the latter felt himself aggrieved and accordingly brought an action for libel. The "miracle" was thereupon inquired into by the court, which decided that the medical man had been libelled and that the priest must pay a fine of 150 kronen, with the alternative of three days' imprisonment, and must also pay the costs. The court could not make the priest pay his offer of 1000 kronen, as there was no obligatory mutual engagement to that effect, but the "miracle" is now shown to exist only in the statements made by the reverend gentleman.

Erection of the First Crematorium in Austria.

The law in this country has hitherto been thought to be adverse to all endeavours to dispose of the dead by the use of fire, and all public and private lectures by the "Flamme," our society for promoting cremation, were of no avail against the influence of religious or pseudo-religious ideas. In Reichenberg, however, the chief industrial city of our northern provinces, the town council decided to erect a crematorium, with the view of bringing it into use as soon as the legislature could be prevailed upon to sanction cremation. Of course, the reactionary party tried to prevent the erection of the necessary buildings, but when the town council appealed to the chief court of justice it came out that there was no law prohibiting such a crematorium, and the same court declared that it was reasonable to suppose that in course of time the legislature would permit public cremation. This unexpected breadth of view on the part of the judges of the chief court will do much to encourage sympathisers with those who prefer this method of disposal of the dead.

The Proposed Cancer Hospital in Vienna.

A well-known philanthropic lady died some time ago, and

when her will was proved it was found that she had left a sum of 1,500,000 kronen for the purpose of erecting a cancer hospital. Bureaucratic difficulties, however, arose which prevented the trustees from handing over the money to the recently constituted Cancer Research Society of Austria, a society which would naturally find such a hospital most useful for the purpose of its investigations. After a prolonged and most unpleasant litigation, in which public feeling was exceedingly aroused by the obstinacy of certain narrow-minded officials, the Home Office finally permitted the handing over of 75 per cent. of the money for the purpose mentioned above, whilst another portion will be taken charge of by the State for the erection of a children's hospital. In the cancer hospital some incurable cases will be admitted if there is room for them. These unhappy patients, who are so interesting in connexion with scientific observation, have hitherto been very badly off in this country, and much useful information has been lost by the want of opportunities for watching the course of cancer and other forms of malignant new growth.

March 30th.

NOTES FROM INDIA.

(FROM OUR OWN CORRESPONDENTS.)

Sanitation in India.

THE appearance of the Report of the Sanitary Commissioner with the Government of India is always an event of much medical interest in this country. The arrangemen of the report for 1910, which has just been issued, marks a departure from that of previous years, which, while not sacrificing the value of the publication, has reduced its bulk. A new feature is the section entitled "Medical Institutions," contributed by the Director-General, Indian Medical Service, which enhances the value and usefulness of this report. The tables show that the health of both the European and Indian troops during 1910 was very good, but as usual the sickness and mortality were greater in the northern than in the southern army amongst both bodies of men. Among the European troops the constantly sick-rate fell to 31·9 per 1000, from the rate of 50·6 per 1000 in the quinquennium 1904–08, and the death-rate declined to nearly half—4·66, against 9·86 per 1000; whilst the invaliding rate fell to less than a third—that is, to 7·77 from 25·23 per 1000. The increased attention to the care of the British soldier in India is instanced by the fact that as a protection against malarial fever mosquito curtains were used by a considerable proportion of soldiers in 15 stations, and although in a number of them the men themselves bought the curtains, it may be taken that they were induced to do so. Enteric fever appears to be vanishing, as from 224 deaths in 1905 the number fell to only 46 in 1910. Of three of the stations in which the largest number of cases occurred two were in the Punjab—Sialkot and Rawal Pindi—where 18 and 17 cases respectively were recorded. Among the Indian troops the rates do not show the remarkable fall which occurred among the European troops, but still they show that there has been improvement. The constantly sick-rate of 21·1 per 1000 in 1910 was below the rate of 22·9 in the quinquennium 1904–08; the death-rate 4·89, against 7·34; and the invaliding rate 5·21, against 8·13 respectively. The total death-rate from all causes was 33·20, and it is noteworthy that whilst cholera, small-pox, and plague inspire such dread in the lay mind, the death-rates from these causes were only 1·90, 0·23, and 1·83 per 1000 respectively, figures, of course, quite insignificant as compared with the death-rate of 19·17 per 1000 from "fevers." The importance of special measures for investigating malarial fevers has been amply recognised, and a "special malaria officer" is now employed by several provincial authorities. The new chapter on medical institutions affords in a concise form information not hitherto conveniently available. It is seen that there were 2670 State general, local fund, and private-aided hospitals and dispensaries, affording medical treatment to no less than 28,343,370 patients; and, in addition, there were 1483 State special railway and private non-aided institutions, which relieved 6,751,234 patients. At all the hospitals 1,346,824 operations were performed. To the lunatic asylums 1680 cases were admitted during 1910, the total number of inmates being 5908 males and 1497 females. The number of criminal lunatics among them totalled 2031. The chapter contains a short account of the number of pupils at the several medical colleges and schools established in the country, and affords information of value to those interested. The nationality of the students has not been stated, and this might be a useful addition in future reports. To those seeking to know what is being done for the improvement of public health in India this report affords a vast mine of information in a concise and convenient form.

The Health of the New Imperial City.

A good many hard things have been said in Calcutta about Delhi since the intended change of capitals was announced, and its terrible unhealthiness has in particular been enlarged upon. But it is remarkable that its population should have gone on steadily increasing, while that of other important trade centres in Northern India should have seriously decreased. The Census returns of last year tell their own tale. In 1901 Delhi had a population of 208,575; in 1911 it was 232,837. In the same period Amritsar—the nearest rival of Delhi—sank from 162,429 to 152,756; Agra, from 188,022 to 185,449; and Cawnpore, from 202,797 to 178,557. These decreases were due mostly to the ravages of plague, though epidemics of malaria had also their effect. Delhi is admittedly in the autumn-fever zone, and also in the area through which plague has swept since it first appeared in the Punjab and the United Provinces, and yet its population has risen by more than 24,000 in ten years. Going still further back to the Census of 1891, we find the increase has been over 39,000 in 20 years. *Apropos* of this point it is interesting to recall the evidence given by Sir John Lawrence before Sidney Herbert's famous committee in 1859, when he declared that the "whole of the country round the old cities of Delhi and Lahore was rotten and decayed, so that it was difficult to find healthy sites within several miles." Lawrence was well qualified to dogmatise about Delhi as he was in the district seven years as an assistant and district magistrate. He emphatically protested against unqualified committees reporting favourably on what he called "the great charnel house," and pointed out in his evidence that the troops in Delhi died off with such great rapidity that no British regiments were stationed there when mutiny broke out—"their lives were too valuable." The progress of the population seems not to bear out Lawrence's pessimistic views.

Plague and Cold Weather.

The cold weather of March has coincided with a marked diminution of plague in Upper Burma in comparison with former ones, although the disease still continues to appear sporadically from time to time. It looks, however, as though it were going at last to die out in the province, seeing that even in Rangoon—which is, of course, more subject to infection owing to the chances of importation for the disease there—at present the cases under treatment only number some half a dozen a week. In Upper Burma plague appears now and again in unexpected quarters, but it would seem that the preventive measures which have been in force for so long have now at last got the better of the scourge.

Bombay Water Supply.

At the next meeting of the Bombay Corporation the master engineer will submit a detailed scheme of duplicating the principal main. So bright are the financial prospects of the undertaking that three years ago it was stated in the course of a report on the Bombay water-supply, that had the water-works been owned by a private company the duplication of the Tansa main would have been an accomplished facts years ago. The new scheme is estimated to cost nearly half a million. The effect of this work will be to increase the daily supply of water to the city from 31½ million gallons to 49½ million gallons, giving a constant supply of 41 gallons per head to a population of 1¼ millions. This means that instead of an intermittent supply, as at present, there will be a constant supply of 49½ million gallons, gradually diminishing to 41 million gallons in 1933, when the intermittent supply will again have to be resorted to unless other works are carried out.

The Annual Indian Medical Service Dinner at Lucknow.

For many years it has been the custom to hold an Indian Medical Service dinner during the Civil Service Cup Week at Lucknow. This year's function was particularly well attended. Colonel C. C. Manifold, Inspector-General of Civil Hospitals for the United

Provinces, was in the chair. After the usual loyal toasts, that of "The Sister Service" was proposed, Surgeon-General Corker, who technically does not belong to it, replied for the Royal Army Medical Corps. The toast of "The Guests" was responded to in a witty speech by Major G. MacI. C. Smith, I.M.S. The band of the 36th Sikhs played during dinner.

The New Governor's Medical Staff Officer.

A new medical staff appointment will come into existence with the new Governorship of Bombay. In addition to the Viceroy, the Governors of Bombay and Madras have always enjoyed the privilege of a personal surgeon. Lord Carmichael has not yet appointed the medical member of his staff, and much speculation exists as to whether the appointment will fall to the British or Indian Service. At present the appointments are equally divided, as the Governor of Bombay has a member of the former and the Governor of Fort St. George a member of the latter.

The Boy Scout Movement in India.

Brigadier-General F. G. Bond, C.B., commanding the Southern Brigade, has accepted the office of Chief Commissioner of the Boy Scouts in India. Lieutenant Pakenham, R.E., is to be Assistant Chief Commissioner, and Captain Baker, of Bangalore, General Secretary. These appointments are the result of a meeting of scoutmasters held in Calcutta during the recent rally, and will, it is hoped, pave the way for the creation of a Headquarters Council on the lines of that existing at home.

The Terrors of Vaccination.

That vaccination has not lost its terrors for the native of India is apparent from a case reported from a Bengali village. There are a number of native Christians living in the village. Recently when an inspector of vaccination with a posse of policemen visited the village, he attempted to vaccinate a Christian villager. The latter resisted and, finding himself cornered, took out a *dao* and cut the inspector in two. The policemen took to their heels. Another vaccinator went to inquire into the matter and was also killed. The villager then committed suicide.

The Cocaine Habit amongst Indians.

The cocaine habit is very much on the increase in this country, and its dangers are appreciated by intelligent Indians, as may be gathered from the following extract which I take from one of the Punjab vernacular papers:—"During my last visit to Delhi I noticed that many people were in the habit of using cocaine in betel leaves. I tried to find out the source from which they obtained cocaine, but without success. Probably pansellers sell this injurious drug. The police must be on the look-out, otherwise this abominable habit of the people will ruin many families, both from the pecuniary point of view and its cursed use."

Investigation of Malaria.

Captain J. H. Horne, I.M.S., has been appointed for a period of three years special officer for investigation of malaria in the Madras Presidency.

* March 16th.

OPHTHALMOLOGY AT OXFORD.—The ninth annual post-graduate course in ophthalmology at Oxford has been arranged for the end of June during the concluding two weeks of the course of instruction for the diploma in ophthalmology. The former consists of systematic lectures and clinical demonstration of a large number of illustrative cases of the various conditions, particular attention being given to refraction work for those who require it. The course for the diploma begins on May 1st. It includes instruction in physiological optics, under Professor F. Gotch, in the department of physiology; the anatomy of the eye and orbit, by Professor Arthur Thomson, in the department of anatomy; and in the department of ophthalmology there will be given instruction in ocular pathology, applied bacteriology, and practical methods. Attendance at systematic and clinical lectures will be required and attendance at the work of the Oxford Eye Hospital. The University examination for the diploma in ophthalmology takes place in the third week in July. Further particulars may be obtained from Mr. R. W. Doyne, reader in ophthalmology in the University of Oxford. The Oxford Ophthalmological Congress meets on Wednesday, July 17th, and rooms will be provided in Keble College for those who desire to attend.

Obituary.

THEODORE LEIGHTON PENNELL, M.D., B.Sc. LOND., F.R.C.S. ENG.,

CHURCH MISSIONARY SOCIETY, BANNU, NORTHERN INDIA.

BY the death of Dr. Theodore L. Pennell, at Bannu, on March 23rd, from septicæmia, which we announced in our last issue, the medical profession loses one of those, not few amongst its members, who have spent their lives wholly in the service of their fellow-men. Born at Clifton in 1867, he was educated at Eastbourne College, and even in boyhood showed a strong desire for a missionary career. He decided to become a medical missionary, and to this end entered University College. Here his career was a very brilliant one. He obtained numerous scholarships and prizes, passed the M.B. Lond. final examination with honours, gaining the scholarship and gold medal, and in 1891 took the M.D. degree, again obtaining the gold medal. The following year he became a Fellow of the Royal College of Surgeons of England. At University College Hospital he held the posts of house surgeon, house physician, and ophthalmic assistant. His successes as a student in no degree weakened his earlier resolves, and having been accepted by the Church Missionary Society, he was posted in 1892 to the North-West Frontier of India. A year later he received instructions to establish a Medical Mission at Bannu, a small town and military station on perhaps the wildest section of the border.

From the very first Pennell was a true pioneer. His great longing was to win the confidence of the wild Waziri tribesmen, and to this end he spared himself neither labour nor hardship. Dressed as one of themselves, he travelled amongst their villages, accepted their rough hospitality, became conversant with their language and customs, and with utter fearlessness preached the Gospel in places where its message had never been heard before. He soon had a hospital built and in full working order, and his surgical skill, coupled with a personality which exactly suited the Pathans, gradually won for him an immense reputation not only amongst the Frontier tribesmen, but also far beyond in Afghanistan, a country closed as yet to doctors no less than to missionaries. In his later years the affection with which he was regarded was quite extraordinary, and, as many thrilling adventures proved, his person was sacred where the life of any other European would have been in jeopardy. The value of Dr. Pennell's work, and its essentially pacific tendency, was fully recognised by Government officials, political and military, all along the Frontier, and much weight was given to his opinion when difficulties threatened with the border tribesmen. Several years ago he received the silver "Kaisar-i-Hind" medal, "for public service in India," and in 1910 the gold medal was awarded to him. Almost from the beginning of Dr. Pennell's work the superintendence of a large school devolved upon him. His boys were devoted to him, and Pennell's success as an educationist was no less marked than as a medical missionary. Naturally somewhat reserved, especially with his fellow countrymen, it was amongst the schoolboys that he seemed completely to unbend and to show the full attractiveness of his personality. His multifarious duties precluded original research or scientific work. He was a careful and rapid operator; and his cataract extractions have for many years been more numerous than those of any other surgeon on the North-West Frontier.

For 16 years Dr. Pennell had as his companion and helper his widowed mother. Shortly after her death in 1908 he married Miss Alice Sorabji, M.B., B.S. Lond., who was herself an experienced medical missionary, and through whose energy the zenana part of the mission hospital has been greatly developed.

Amongst Europeans who had not the privilege of his personal friendship Dr. Pennell's name will be remembered through his intensely interesting book, largely autobiographical, "Among the Wild Tribes of the Afghan Frontier." This book was revised for press by Dr. J. Cropper, at whose instance it was written. On that same Frontier his memory is enshrined in the hearts of multitudes of those who loved him—rough Waziri tribesmen grateful for healing, and intelligent students to whom he represented their ideal of goodness.

The seriousness of the loss is greatly enhanced by the fact

that Dr. Pennell's young colleague, Dr. W. H. Barnett, had been attacked by the same disease and had passed away only a few hours previously.

A memorial service was held on March 30th at St. Pancras Church, London, at the request of members of University College.

DEATHS OF EMINENT FOREIGN MEDICAL MEN.—The deaths of the following eminent foreign medical men are announced:—Dr. F. Olóriz y Aguilera, professor of anatomy in the University of Madrid.—Dr. Leonard Weber, formerly professor of medicine in the New York Post-Graduate Medical School and Hospital.—Dr. Yastrowitz, medical Privy Councillor, Berlin.—Dr. Schück, sanitary councillor, Görlitz.—Dr. Lamz, medical Privy Councillor, Berlin.—Professor Pagel, of Berlin.

Medical News.

VICTORIA UNIVERSITY OF MANCHESTER.—At examinations held in March the following candidates were successful:—

THIRD M.B. AND CH.B.

General Pathology and Morbid Anatomy.—Ada L. Bentz, F. C. Bentz, H. C. Duffy, C. W. Fort, H. S. Gerrard, R. B. Gorst, W. L. Nicholson, H. A. Sandiford, F. K. Tomlinson, C. H. Whittall, S. A. Winstanley, and H. C. Wright.

SECOND M.B. AND CH.B.

W. S. Booth, J. E. Brookes, N. H. Davison, S. G. J. Dowling, J. G. McKinley, J. F. O'Grady, and J. R. Slack.

Physiology.—J. F. C. O'Meara.

FIRST M.B. AND CH.B.

Part I., Inorganic Chemistry and Physics.—J. H. Albinson, Richard Colley, Eva L. Glasier, Jacob Holker, B. L. Lloyd, F. C. Ormerod, J. A. Panton, Nesta H. Perry, Nora H. Schuster, J. B. Wild, and J. C. Williams.

Part II., Biology.—James Brooks, J. D. Byrd, Kathleen L. Cass, Richard Colley, Eva L. Glasier, Jacob Holker, Alice M. A. Holt, B. L. Lloyd, R. L. Newell, F. C. Ormerod, J. A. Panton, Nesta H. Perry, Dorothy Potts, Nora H. Schuster, Walter Stansfield, Louis Walton, J. B. Wild, and J. C. Williams.

Chemistry.—E. W. Fish, J. B. Leigh, F. H. Moor, R. L. Newell, and Walter Stansfield.

Physics.—A. M. Cotes.

Botany.—E. W. Fish.

DIPLOMA IN DENTISTRY (FIRST EXAMINATION).

E. D. Batty, J. G. Butterfield, Joseph Clegg, H. J. F. Green, H. L. Howorth, J. E. Magraw, Harry Morton, W. H. D. Quinn, Jessie I. Ramsden, and N. H. Wood.

Chemistry.—R. A. Birkett.

DIPLOMA IN DENTISTRY (SECOND EXAMINATION).

Herbert Cartman, E. W. Fish, F. F. H. E. Kolligs, G. N. Scotts, W. J. Slater, and R. S. Smith.

Dental Metallurgy.—Amos Brooks, Benjamin Brown, G. L. Elmitt, P. J. Kieran, Herant Papazian, E. A. Phillips, and E. B. Warner.

Dental Mechanics.—Arthur Coupe and Douglas Esliman.

DIPLOMA IN DENTISTRY (THIRD EXAMINATION).

T. K. Place and Douglas Wood.

THIRD B.D.S. EXAMINATION.

Kate Latarche.

SECOND B.D.S. EXAMINATION.

M. C. Paterson and H. H. Stones.

Dental Mechanics.—Aquila Whitehead.

DIPLOMA IN PUBLIC HEALTH.

E. J. Batty, Albert Hilton, and G. Y. Wong.

UNIVERSITY OF ABERDEEN.—At the graduation ceremony on March 28th the following among other degrees were conferred:—

Degree of Doctor of Medicine (*M.D.*).—Alexander Low, Augustus George Stewart, Cuthbert Delaval Shafto Agassiz, William Wilson Jameson, James Ross Mackenzie, John Rennie, and Richard Eager.

Degrees of Bachelor of Medicine (*M.B.*) *and Bachelor of Surgery* (*Ch.B.*).—Second Class Honours: Angus Forsyth Legge, Richard Reginald Maitland Porter, Hugh Ross Souper, and George Stuart. Ordinary Degree: Bernard Gordon Beveridge, Hugh Gilbert Bruce, James Chalmers, Alfred Duguid, Norman Alistair Duncan, John George Elder, Harold Turner Finlayson, Margaret Rose Forgan, Andrew Paton Gray, William Henderson, William Peat Hogg, William Wilson Ingram, George Mortimer McGillivray, Norman Macphail, Archibald Campbell Macrae, Robert Godfrey Martyn, Robert William Skinner Murray, Wilifrid Paton Philip, Donald Olson Riddel, and Charles Melvin Stephen.

Diploma in Public Health.—William Allan and Henry Duguid.

UNIVERSITY OF DURHAM.—At examinations held recently the following candidates were successful:—

FIRST EXAMINATION FOR THE DEGREE OF BACHELOR OF MEDICINE.

Elementary Anatomy and Biology, Chemistry and Physics.—Richard Vere Brew, Bristol University and College of Medicine, Newcastle-upon-Tyne; William John Henry Brown, College of Medicine, Newcastle-upon-Tyne; Ah Chit Jap, M.R.C.S., L.R.C.P., Guy's Hospital; Claude Woodham Morris, M.R.C.S., L.R.C.P., University College, London; and Henry Aidan Newton and Arthur Edwin Raine, College of Medicine, Newcastle-upon-Tyne.

Elementary Anatomy and Biology.—John Brumwell, College of Medicine, Newcastle-upon-Tyne; Dorothy Edith Butcher, London School of Medicine for Women; Mary Russell Campbell, John Alexander Charles, George Albert Clark, Roy Neville Craig, Douglas Ethelbert Hearn, William Andrew Hewitson, John Horsley, Reginald Hunter, John Kerr Ritchie Landells, Phyllis Marriott, Carl Damien Newman, and George Flemming Philip, College of Medicine, Newcastle-upon-Tyne; Kamel Ibrahim Shalaby, School of Medicine, Cairo, and College of Medicine, Newcastle-upon-Tyne; Thomas Wilson Shaw, William Oxley Forster Sinclair, and John Thomas Smith, College of Medicine, Newcastle-upon-Tyne; and Iskander Soliman, School of Medicine, Cairo, and College of Medicine, Newcastle-upon-Tyne.

Chemistry and Physics.—Horace George Bennett Dove, Lionel Basil Frere, Cecil Neild Joseph, Edward Ek Dung Lau, Robert Bourn Pirrie, John Dover Proud, and William Arthur Tweedle, College of Medicine, Newcastle-upon-Tyne.

Elementary Anatomy.—Harold Williamson, Charing Cross Hospital; and Robert Welch, B.Sc., College of Medicine, Newcastle-upon-Tyne.

SECOND EXAMINATION FOR THE DEGREE OF BACHELOR OF MEDICINE.

Anatomy and Physiology.—Second-class Honours: William Stott, Charles Henry Keay, and William Herbertson, B.Sc., College of Medicine, Newcastle-upon-Tyne. Pass-list: Patrick Alexander Clements, Arthur Farrell Renner Dove, Mary Sarah Gordon, Leo Magee, Gerald Douglas Newton, Roland Sells, Charles Gordon Strachan, and Alexander Gordon Taylor, College of Medicine, Newcastle-upon-Tyne.

THIRD EXAMINATION FOR THE DEGREE OF BACHELOR OF MEDICINE.

Materia Medica, Pharmacology and Pharmacy, Public Health, Medical Jurisprudence, Pathology, and Elementary Bacteriology.—Second-class honours: Frederick John Nattrass and William Kerr Russell, College of Medicine, Newcastle-upon-Tyne. Pass-list: William Bell and George Albert Berkeley-Cole, College of Medicine, Newcastle-upon-Tyne; Roger Paul Ninnis, Guy's Hospital; and Sydney Thompson, College of Medicine, Newcastle-upon-Tyne.

Public Health, Medical Jurisprudence, Pathology, and Elementary Bacteriology.—Ernest Robert Bell and Laurence Heber Warneford Iredale, College of Medicine, Newcastle-upon-Tyne; Robert Lacy Kitching, St. Bartholomew's Hospital; Sydney Ellington Murray and John Logan Pringle, College of Medicine, Newcastle-upon-Tyne; James Stewart Soutter, St. Bartholomew's Hospital; and Herbert Joseph Shanley and George Edward Stephenson, College of Medicine, Newcastle-upon-Tyne.

LICENCE IN DENTAL SURGERY (L.D.S.).

First Examination.—Chemistry and Physics.—Cyril Valentine Walker, College of Medicine, Newcastle-upon-Tyne.

Second Examination.—Dental Mechanics, Dental Metallurgy, and Dental Materia Medica.—Wallace Edwin Hurford, College of Medicine, Newcastle upon-Tyne.

Third Examination.—Anatomy, Physiology and Histology, Dental Anatomy and Dental Histology.—William Hutson, College of Medicine, Newcastle-upon-Tyne.

At the Convocation on March 30th the following degrees and diplomas were conferred:—

Doctor of Medicine.—Guy Rowland East, Marcus Sinclair Paterson, and Harold Widdrington Sykes.

Doctor of Medicine for Practitioners of 15 Years' Standing.—Septimus Rayner Lister, John Lewis Thomas, Laurence Amos Winter, and Herbert de Carle Woodcock.

Bachelor of Medicine (*M.B.*).—Everard Cecil Abraham, Ronald Greig Badenoch, Sam Phillips Bedson, B.Sc., Frederick Ernest Chapman, and Joseph Wilfrid Craven, College of Medicine, Newcastle-upon-Tyne; Reginald Cyril Herbert Francis, Guy's Hospital; Louis Ernest Seide Gellé, Edinburgh School of Medicine; and James Kenworthy Johnston Haworth, Edwin Kidd, William Guy Lidderdale, Colin Mearns, James Alwin Colville Scott, William Arthur Slater, and Robert Wilkie Smith, College of Medicine, Newcastle-upon-Tyne.

Bachelor of Surgery (*B.S.*).—Everard Cecil Abraham, Sam Phillips Bedson, B.Sc., Frederick Ernest Chapman, and Joseph Wilfrid Craven, College of Medicine, Newcastle-upon-Tyne; Louis Ernest Seide Gellé, Edinburgh School of Medicine; and James Kenworthy Johnston Haworth, Edwin Kidd, William Guy Lidderdale, Colin Mearns, James Alwin Colville Scott, William Arthur Slater, Robert Wilkie Smith, and Thomas Ruddock West, College of Medicine, Newcastle-upon-Tyne.

Bachelor of Hygiene (*B.Hy.*).—Cuthbert Rex Wilkins.

Diploma in Public Health (*D.P.H.*).—Algernon Edward Luke Wear and Cuthbert Rex Wilkins.

FOREIGN UNIVERSITY INTELLIGENCE.—*Basle:* Dr. von Herff, Professor of Midwifery and Gynæcology, has been offered the chair of Midwifery at the Academy for Practical Medicine, Cologne, but has decided to remain in Basle.—*Breslau:* Dr. Fuchs, *privat-docent* of Physiology, has been granted the title of Professor.—*Düsseldorf* (*Academy for Practical Medicine*): Dr. Joseph Peretti, Director of the Grafenberg Asylum and *docent* of Mental Diseases in the Academy, has been granted the title of Professor.—*Freiburg:* Dr. Martin Hahn, of Königsberg, has been appointed to the chair of Hygiene, in succession to Dr. Schottelius, who is retiring.—*Jena:* Dr. W. Roepke, Extraordinary Professor of Surgery, is leaving Jena as he has been appointed Director of the surgical side of the Barmen Hospital, in succession to Dr. Heusner, who is retiring.—*Kiel:* Dr. J. W. Miller, of the Pathological Institute of

Giessen, has been appointed Prosector to the Hospital, in succession to Dr. Stahr.—*Rostock:* Dr. Adolf Becker, *privat-docent* of Surgery, has been granted the title of Professor.—*San Francisco* (*Leland Stanford University*): Dr. Langley R. Porter has been appointed Professor of Pædiatry, and Dr. Harry E. Alderson Adjunct Professor of Dermatology.—*Warsaw:* Dr. Petroff, of the Military Medical Academy, St. Petersburg, has been appointed to the chair of Clinical Surgery.—*Zürich:* Dr. Freer, Director of the Pædiatric Clinic, has been offered the chair of Children's Diseases in Basle, in succession to Dr. Hagenbach, who is retiring, but has decided to remain in Zürich.

THE Emperor of Japan has conferred the Order of the Rising Sun on Mr. Joseph Bower Siddall, M.D., C.M. Aberd., M.R.C.S. Eng., D.P.H. Camb., of Malvern, formerly physician H.B.M. Legation at Japan.

AT a drawing-room meeting of the Women's Industrial Council, at 31, Porchester-terrace, W., on March 28th, Dr. Eric Pritchard and others spoke on the Nursery Training School established at 4, King Edward-road, Hackney, N.E., where girls of the industrial classes are being trained as little children's nurses. Lady Horsley took the chair.

Parliamentary Intelligence.

NOTES ON CURRENT TOPICS.

Infantile Mortality.

VERY elaborate statistics are given in the return, which has just been presented to the House of Commons, on the mortality from small-pox at varying ages, and also on various causes of infantile mortality. From a table dealing with the deaths of infants under one year of age per million births, it appears that the ratio from the following causes in 1910 was: Syphilis, 1150; scrofula, 658; tuberculous peritonitis and tabes mesenterica, 1550; skin diseases, 479; erysipelas, 170; pyæmia and phlegmon, 221; bronchitis, 7900; diarrhœa, 7926; atrophy and debility (including premature birth), 32,960. The total ratio per million from these nine enumerated causes was 53,014. The ratio of deaths per million births from all causes is given at 105,440 for the same year.

HOUSE OF COMMONS.

WEDNESDAY, MARCH 27TH.

Preservatives in Cream.

THE EARL of RONALDSHAY asked the President of the Local Government Board whether he intended issuing regulations laying down a standard for fat in preserved cream, and requiring the words "Preserved cream, Boricised," to be inscribed on every bill, invoice, card, or other announcement in respect of the sale of preserved cream; if so, when these regulations would come into force; and whether those engaged in the preparation and sale of preserved cream had been, or would be, given an opportunity of expressing their views upon the proposed regulations.

Mr. PETO asked the right honourable gentleman whether he was aware that the proposed regulations as to the sale of cream would seriously injure the trade and prejudice consumers to an unreasonable extent; and whether he could see his way to altering the proposed wording of the labelling and invoicing so as, while conveying the necessary intimation to the public, it should not give an erroneous impression that the use of the article was prejudicial to health.

Mr. BURNS (replying to these and to similar questions standing in the names of Mr. Bridgeman and Sir Fortescue Flannery) said: Some misapprehension exists in regard to these proposals. As a result of numerous investigations which have been made by medical inspectors of the Foods Department of the Local Government Board and by others I am satisfied that in the interests of public health regulations are required in regard to the sale of cream containing preservatives. I have accordingly had regulations prepared and public notice has been given of them. I am anxious that any regulations which are made should interfere with legitimate trading as little as possible, and any representations which are submitted with regard to the proposals which are contained in the draft will be fully considered. The statutory period under the Rules Publication Act, 1893, for the making of objections will expire at the end of this month, but this would not, of course, preclude my taking into consideration communications subsequently received. As the draft now stands no part of the Order will come into operation until June 1st next, and certain provisions not until Jan. 1st next. If the trade consider that other dates should be chosen I should, of course, take account of any facts which they may submit in support of a suggestion to alter the dates. The points of detail raised in the questions have, I think, all been brought forward in official representations that have reached my department and will be carefully considered.

Mr. HUNT: May I ask the right honourable gentleman whether it is not a fact that boric acid is very injurious to health, and that its use is prohibited as a criminal offence in America, and whether he will not have its use here made a criminal offence.—Mr. BURNS: It is true that boric acid and many other preservatives when disproportionately used are dangerous to health, and it is to prevent that that these draft orders have been prepared for the consideration of those interested. It is the temporary object of the Local Government Board to diminish the use of preservatives to the very lowest minimum. I hope it will be possible some day to get rid of them altogether.

Mr. PETO: May I ask whether as this departure seriously concerns the milk and creamery trade the right honourable gentleman will notify at once that some later day than June 1st may be fixed for these disputed regulations coming into operation?

Mr. BURNS: I do not think that on the point of notice any complaint can be made. Everybody concerned has had 40 days' notice. As to June 1st for the first introduction of the Orders, I have already said that I am prepared to consider the question whether a later date should be substituted for June, and whether a later date still should be substituted for January. On the whole, the trade has been treated reasonably well, particularly when it is borne in mind that it is at the instigation of the honest producers of pure cream that action like this has been undertaken.

Mr. BRIDGEMAN: Is it open to alter the regulations between March 30th and June 1st?—Mr. BURNS: Yes, that is so.

Sir JOHN SPEAR: Are we to understand that when no preservative is added to cream there is to be no necessity for a label?—Mr. BURNS: If pure cream is pure, there will be no need to say that it is impure.

Mr. O'SHAUGHNESSY asked the Vice-President of the Department of Agriculture (Ireland) whether he could say what were the regulations intended to be made with regard to the sale of preserved cream; whether these regulations had the sanction of any dairy societies in Ireland or other bodies interested in its sale; whether he had received a statement from the Kantoher Coöperative Dairy Society, Limited, of Killeedy, county Limerick, to the effect that such regulations would tend to injure its sale; and what action he intended to take in the matter.—Mr. T. W. RUSSELL wrote in reply: The Local Government Board propose to make regulations with regard to the use of preservatives in cream and the labelling of receptacles of preserved cream. The sanction of dairy societies is not required for such regulations; but any representations which such societies or any person interested in the sale of cream may make to the proper quarter will no doubt receive due attention. No such statement has been received so far from the dairy society mentioned. A communication objecting to the regulations has, however, been received. The matter is being considered.

THURSDAY, MARCH 28TH.

Ballymena Asylum.

Captain O'NEILL asked the Chief Secretary to the Lord Lieutenant of Ireland whether his attention had been called to the evidence of Dr. Nolan in July last before the Select Committee on the Asylums Officers (Employment, Pensions, and Superannuation) Bill, on the subject of the Ballymena Asylum, in which he stated that although this institution was not an auxiliary asylum within the meaning of Acts of Parliament, the hours and duties were practically the same as in other asylums in Ireland, and that the attendants had a just claim to come within the scope of the Asylums Bill now before Parliament; and owing to the fact that this was the only asylum in Ireland in which the attendants were appointed by the board of guardians instead of by the Asylums Committee, and that an appeal on their behalf was signed by influential residents of all political opinions in the district, would he state whether he would arrange to bring this asylum within the scope of the Bill, or by what means he would adjust its admitted disabilities?—Mr. BIRRELL answered: I have seen the evidence of Dr. Nolan referred to. The Ballymena institution is not an asylum within the meaning of the Lunatic Asylum Acts, but a workhouse, and the attendants are appointed by the board of guardians. Attendants in such institutions are pensionable under the Union Officers' Superannuation Acts, and I see no reason to differentiate between them and other workhouse attendants in this respect. I would further remind the honourable Member that the Bill in question is not a Government measure.

Viscount WOLMER: Would the right honourable gentleman use his influence with the Prime Minister in favour of the Bill?—Mr. BIRRELL: No; I do not think in the present state of affairs I could do so.

Hypnotism.

Mr. GIBBS asked the Secretary of State for the Home Department whether he would consider the desirability of introducing a Bill at an early date prohibiting the exercise of hypnotism on patients for fee or reward by any persons, whether they were Christian Scientists or those who styled themselves healers or practitioners, unless they were duly registered and qualified medical practitioners.—Mr. MCKENNA replied: I do not at present see my way to introducing legislation with regard to this matter.

MONDAY, APRIL 1ST.

County Nursing Associations and the Insurance Act.

Mr. CHARLES BATHURST asked the Secretary to the Treasury to what extent county nursing associations and the rural midwives associations could, and were likely to be, utilised in connexion with the National Health Insurance scheme; and whether any grants out of public funds would be obtainable by such associations to balance the loss of voluntary contributions which they were already suffering, and were likely to suffer still further in the future, as the result of the National Insurance Act.—Mr. MASTERMAN said in reply: It is impossible at present to forecast to what extent the Local Insurance Committees and approved societies may desire to avail themselves of the assistance of county nursing associations and rural midwives associations. I have no information as to the loss incurred by such associations in voluntary contributions as the result of the National Insurance Act, nor do I anticipate that such a loss, if it exists, would be more than temporary in character.

Appointment of School Medical Officer in London.

Mr. GOLDSTONE asked the President of the Board of Education whether his attention had been called to the appointment of a school medical officer and a deputy school medical officer by the London County Council without reference to the Education Committee; and whether, seeing that it was provided by the Education Acts that all matters relating to the exercise by the Council of their powers under the Acts, except the power of raising a rate or borrowing money, should stand referred to the Education Committee, he proposed to take any action in the matter.—Mr. J. A. PEASE replied: With reference to the first part of the question, I have received no official information on this subject beyond a notification of the appointment of the officer

referred to. With regard to the second part of the question, I do not think that any occasion has arisen for me to intervene in the matter.

TUESDAY, APRIL 2ND.

Patent Medicines.

Mr. LYNCH asked the Chancellor of the Exchequer whether he was aware that concessions were granted by the Inland Revenue authorities enabling patent medicines to be retailed in small quantities in such a manner as to lessen the revenue on these products, that this practice also facilitated the distribution of quack medicines to poor people, that such concessions gave rise to spurious imitations, and whether he would take steps to put an end to the practice.—Mr. LLOYD GEORGE wrote in reply: The honourable Member's question raises several points of considerable difficulty both as to law and as to policy. I fear that they cannot be adequately dealt with in reply to a question, but they might, I think, be appropriately considered by the proposed Select Committee on Patent Medicines. Perhaps the honourable Member will communicate with the Home Secretary on this subject.

BOOKS, ETC., RECEIVED.

BIBBY, J., AND SONS, Feeding Experts, Formby-street, Liverpool.

Bibby's Book on Milk. Section IV. Bovine Tuberculosis: Cause, Cure, and Eradication. A Summation of Material Facts and Eminent Opinions for the use of Farmers, Cattle-owners, Milk-producers, Veterinarians, Students, and Others. First Edition. Price not stated.

BOERICKE AND TAFEL, 1011, Arch-street, Philadelphia, Pa., U.S.A.

Modern Urinology. A System of Urine Analysis and Diagnosis. By Clifford Mitchell, A.B., M.D., Chicago, Ill., Professor of Chemistry, Clinical Urinology and Renal Diseases, Hahnemann Medical College, Chicago, Ill. Price, cloth, $3.00 net.

CHURCHILL, J. AND A., London.

The Technique and Results of Radium-Therapy in Malignant Disease. By M. Dominici, M.D. Paris, Chef du Service de Pathologie Interne, Laboratoire Biologique du Radium; and A. A. Warden, M.D., Glasgow and Paris, Visiting Physician to the Hertford British Hospital. Reprinted from the *British Medical Journal* of August 27th, 1910, with additional Plates and more recent Notes, March, 1912. Price 2*s.* net.

Diseases of the Eye. A Manual for Students and Practitioners. By J. Herbert Parsons, D.Sc., M.B., B.S., F.R.C.S., Ophthalmic Surgeon, University College Hospital; Surgeon, Royal London (Moorfields) Ophthalmic Hospital; late Ophthalmic Surgeon, Hospital for Sick Children, Great Ormond-street. Second edition. Price 12*s.* 6*d.* net.

Text-book of Embryology. By Frederick Randolph Bailey, A.M., M.D., formerly Adjunct Professor of Histology and Embryology, College of Physicians and Surgeons (Medical Department of Columbia University), and Adam Marion Miller, A.M., Instructor in Anatomy, College of Physicians and Surgeons (Medical Department of Columbia University). Second edition. Price 21*s.* net.

A Manual of Structural Botany. An Introductory Text-book for Students of Science and Pharmacy. By Henry H. Rushby, M.D., Professor of Materia Medica in the College of Pharmacy of the City of New York (Columbia University); Chairman of the Scientific Directors of the New York Botanical Gardens; President of the Torrey Botanical Club. Price 10*s.* 6*d.* net.

COLLINGRIDGE, W. H. AND L., City Press Office, 148 and 149, Aldersgate-street, London, E.C.

The City of London Year Book and Civic Directory for 1912. Price 5*s.* net.

CONSTABLE AND CO., LIMITED, 10, Orange-street, Leicester-square, London, W.C.

Outlines of Evolutionary Biology. By Arthur Dendy, D.Sc., F.R.S., Professor of Zoology in the University of London (King's College); Zoological Secretary of the Linnean Society of London. Price 12*s.* 6*d.* net.

OFFICE OF THE SURGEON-GENERAL, Army Medical Museum and Library, Washington,

Index-Catalogue of the Library of the Surgeon-General's Office, United States Army. Authors and Subjects. Second Series. Vol. XVI. Skinko—Stysanus. Price not stated.

Appointments.

Successful applicants for Vacancies, Secretaries of Public Institutions, and others possessing information suitable for this column, are invited to forward to THE LANCET *Office, directed to the Sub-Editor, not later than 9 o'clock on the Thursday morning of each week, such information for gratuitous publication.*

CRICHTON-LUPTON, Captain A., M.B., C.M. Edin., A.M.S., has been appointed Clinical Assistant to the West End Hospital for Diseases of the Nervous System.

GUNSON, E. B., M.D., Ch.B. Edin., has been appointed House Physician to the West End Hospital for Diseases of the Nervous System.

HETT, G. SECCOMBE, M.B. Lond., F.R.C.S. Eng., has been appointed Assistant Surgeon in the Ear, Nose, and Throat Department of University College Hospital.

HOPE, CHARLES W. M., M.D. Durh., F.R.C.S. Eng., has been appointed Clinical Assistant to the Throat and Nose Department, King's College Hospital.

JOHNSTONE, G. G., M.B., B.C. Cantab., has been appointed House Physician at University College Hospital.

PEARSON, W. J., M.B., B.Ch. Oxon., has been appointed House Surgeon at University College Hospital.

PHILLIPS, HUGH R., M.D. Edin., has been appointed Anæsthetist to the West End Hospital for Diseases of the Nervous System.

POPE, F. M., M.D. Cantab., F.R.C.P. Lond., has been appointed Consulting Physician to the Leicester Infirmary.

ROATH, L. M., M.B., B.C., has been appointed Clinical Assistant to the West End Hospital for Diseases of the Nervous System.

SEVESTRE, ROBERT, M.B., B.C. Cantab., has been appointed Honorary Physician to the Leicester Infirmary.

TWINING, D. O., M.R.C.S., L.R.C.P. Lond., has been appointed Obstetric Assistant to University College Hospital.

Vacancies.

For further information regarding each vacancy reference should be made to the advertisement (see Index).

AGRA, UNITED PROVINCES, INDIA, DUFFERIN HOSPITALS AND FEMALE MEDICAL SCHOOL.—Female Senior Doctor. Salary £26 13*s.* 4*d.* per mensem, with free quarters.

BEDFORD COUNTY HOSPITAL.—Assistant House Surgeon. Salary £80 per annum, with board, lodging, and laundry.

BETHLEM HOSPITAL.—Two Resident House Physicians, unmarried, for six months. Salary at rate of £25 each per quarter, with apartments, board, and washing.

BIRMINGHAM GENERAL HOSPITAL.—Honorary Surgeon. In the event of an Assistant Surgeon being elected to fill the office there will be a vacancy for Assistant Surgeon. Salary at rate of £50 per annum.

BOLINGBROKE HOSPITAL, Wandsworth Common, S.W.—House Surgeon. Salary £75 per annum, with board and residence.

BRADFORD CHILDREN'S HOSPITAL.—House Surgeon. Salary £100 per annum.

BRIGHTON, HOVE, AND PRESTON DISPENSARY.—Resident Medical Officer, unmarried. Salary £160 per annum, with rooms, coals, gas, and attendance.

BRIGHTON, ROYAL SUSSEX COUNTY HOSPITAL.—House Surgeon, unmarried. Salary £120 per annum, with board, residence, and washing. Also House Physician, unmarried. Salary £100 per annum, with apartments, board, and laundry. Also Honorary Medical Clinical Assistant. Also Honorary Surgical Clinical Assistant.

BRISTOL GENERAL HOSPITAL.—House Physician for six months. Salary £80 per annum, with board, residence, &c.

BURLEY-IN-WHARFEDALE, YORKSHIRE, SCALEBOR PARK ASYLUM.—Assistant Medical Officer. Salary £180 per annum, with board, &c.

BURY ST. EDMUNDS, WEST SUFFOLK GENERAL HOSPITAL.—House Surgeon, unmarried. Salary £100 per annum, with board, lodging, and laundry.

BUXTON, DERBYSHIRE, DEVONSHIRE HOSPITAL.—Pathologist. Salary at rate of £250 per annum.

CANCER HOSPITAL, Fulham-road, S.W.—Assistant Anæsthetist. Salary 25 guineas per annum. Also House Surgeon for six months. Salary £70 per annum.

CARLISLE NON-PROVIDENT DISPENSARY.—Resident Medical Officer. Salary £150 per annum, with apartments.

CENTRAL LONDON THROAT AND EAR HOSPITAL, Gray's Inn-road.—Honorary Assistant Surgeon.

CHARING CROSS HOSPITAL MEDICAL SCHOOL.—Demonstratorship in Pathology. Salary £150 per annum.

CHELTENHAM GENERAL HOSPITAL.—House Physician, unmarried. Salary £80 per annum, with board, lodging, and washing.

CHESTER GENERAL INFIRMARY.—House Physician. Salary £90 per annum, with residence and maintenance.

COVENTRY AND WARWICKSHIRE HOSPITAL, Coventry.—House Physician. Salary £90 per annum, with rooms, board, washing, and attendance.

DREADNOUGHT HOSPITAL, Greenwich.—Assistant Physician for Diseases of the Skin.

DUDLEY, GUEST HOSPITAL.—Assistant House Surgeon. Salary £80 per annum, with residence, board, and washing.

EAST LONDON HOSPITAL FOR CHILDREN AND DISPENSARY FOR WOMEN, Shadwell, E.—Medical Officer to the Casualty Department for six months. Salary at rate of £100 per annum, with luncheon and tea. Also House Surgeon. Salary at rate of £75 per annum, with board, residence, and laundry.

HACKNEY UNION INFIRMARY, High-street, Homerton, N.E.—Senior Assistant Medical Officer. Salary £175 per annum, with rations apartments, and attendance.

HELLINGLY, EAST SUSSEX COUNTY ASYLUM.—Third Assistant Medical Officer, unmarried. Salary £175 per annum, with board, apartments, washing, and attendance.

HEMEL HEMPSTEAD, WEST HERTS HOSPITAL.—Resident Medical Officer. Salary £100 per annum, with rooms, board, and washing.

HOSPITAL FOR CONSUMPTION AND DISEASES OF THE CHEST, Brompton.—House Physician for six months. Salary 30 guineas.

HULL, VICTORIA CHILDREN'S HOSPITAL, Park-street.—Assistant House Surgeon (female). Salary £40 per annum, with board and laundry.

INVERNESS, NORTHERN INFIRMARY.—House Surgeon. Salary £100 per annum, with board, &c.

IPSWICH BOROUGH.—Assistant Medical Officer of Health. Salary £250 per annum.

KENSINGTON AND FULHAM GENERAL HOSPITAL, Earl's Court, S.W.—Resident Medical Officer for six months. Salary at rate of £75 per annum, with board, washing, and residence.

LEICESTER INFIRMARY.—Assistant House Physician for six months. Salary at rate of £80 per annum, with board, apartments, and washing. Also Honorary Assistant Physician.

LINCOLN COUNTY HOSPITAL.—Junior House Surgeon, unmarried, for six months. Salary at rate of £100 per annum, with board, residence, and washing.

LIVERPOOL DISPENSARIES.—Assistant Surgeon, unmarried. Salary £100 per annum, with board and apartments.

LIVERPOOL, HOSPITAL FOR WOMEN, Shaw-street.—House Surgeon for six months. Salary £50.

LIVERPOOL UNIVERSITY.—Chair of Pathology. Salary £500 per annum. Also Chair of Bacteriology and City Bacteriologist. Salary £300 per annum.

LONDON COUNTY ASYLUMS.—Junior Assistant Medical Officers, unmarried, at Cane Hill Asylum, Coulsdon, Surrey, and at Hanwell Asylum, W. Salary £170 per annum, with board, apartments, and washing.

LOUGHBOROUGH AND DISTRICT GENERAL HOSPITAL AND DISPENSARY.—Resident House Surgeon. Salary £120 per annum, with rooms, attendance, board, and washing.

MANCHESTER CHILDREN'S HOSPITAL, Pendlebury. OUT-PATIENTS DEPARTMENT, Gartside-street.—Honorary Dental Surgeon.

MANCHESTER ROYAL INFIRMARY AND DISPENSARY.—Honorary Assistant Physician.

METROPOLITAN HOSPITAL, Kingsland-road, N.E.—House Physician and House Surgeon. Salary at rate of £60 per annum. Also Assistant House Physician and Assistant House Surgeon. Salary at rate of £40 per annum. Each with board and washing, and all for six months. Also Pathologist and Registrar. Salary at rate of £120 per annum. Also Assistant Physician.

MIDDLESEX HOSPITAL.—Medical Registrar. Also Second Assistant to Director of Clinical and Bacteriological Laboratories. Salary £100 per annum.

NORWICH, NORFOLK AND NORWICH HOSPITAL.—Casualty Officer, unmarried, for six months. Salary £60 per annum, with board, lodging, and washing.

OLDHAM ROYAL INFIRMARY.—Second House Surgeon and Third House Surgeon, each for six months. Salary at rate of £100 and £80 per annum respectively, with residence, board, and laundry.

PADDINGTON GREEN CHILDREN'S HOSPITAL, London, W.—House Physician and House Surgeon for six months. Salary in each case at rate of £52 10s. per annum, with board and residence.

PRINCE OF WALES'S GENERAL HOSPITAL, Tottenham, N.—Senior House Physician, Junior House Surgeon, and Junior House Physician for six months. Salary of former £75 and of two latter £50 per annum, with residence, board, and laundry.

QUEEN'S HOSPITAL FOR CHILDREN, Hackney-road, Bethnal Green, N.E.—House Surgeon. Also House Physician. Each for six months. Salary in each case at rate of £80 per annum, with board, residence, and washing.

READING, ROYAL BERKSHIRE HOSPITAL.—House Physician and Second House Surgeon for six months. Salary in each case £80 per annum, with apartments, board, and washing.

ROYAL ARMY MEDICAL CORPS.—Twenty Commissions.

ROYAL FREE HOSPITAL, Gray's Inn-road, W.C.—Male House Physician and House Surgeon for six months. Also Female House Physician and Female House Surgeon. Also Female Senior Obstetric Assistant. Salary £50 per annum. Also Female Junior Obstetric Assistant. Board, lodging, and washing provided in each case.

ST. JOHN'S WOOD AND PORTLAND TOWN DISPENSARY, 96, St. John's Wood-terrace, N.W.—Third Medical Officer.

ST. MARY'S HOSPITAL, London, W.—Resident Casualty House Surgeon for six months. Salary £100 per annum, with board and lodging.

SALFORD ROYAL HOSPITAL.—Junior House Surgeon for six months. Salary at rate of £65 per annum, with board and residence.

SHEFFIELD ROYAL INFIRMARY.—Junior Resident Medical Officer. Salary £60 per annum.

SHREWSBURY, SALOP INFIRMARY.—House Surgeon, unmarried. Salary £100 per annum, with board, washing, and residence.

SOUTHAMPTON UNION WORKHOUSE INFIRMARY, Shirley Warren.—Resident Assistant Medical Officer. Salary £130 per annum, with apartments, rations, washing, and attendance.

STAFFORD, STAFFORDSHIRE GENERAL INFIRMARY.—House Physician. Salary £82 per annum, with board, residence, and laundry.

STOCKPORT INFIRMARY.—Junior House Surgeon. Salary £80 per annum, with board, washing, and residence.

SUNDERLAND CHILDREN'S HOSPITAL.—Resident Medical Officer for six months. Salary £80 per annum, with board, residence, and laundry.

SUNDERLAND ROYAL INFIRMARY.—Two Junior House Surgeons and House Physician for six months. Salary £80 per annum in each case, with board, residence, and laundry.

WALSALL AND DISTRICT HOSPITAL.—Senior House Surgeon. Salary £120 per annum, with board, residence, and laundry.

WEST LONDON HOSPITAL, Hammersmith-road, W.—Pathologist. Salary £150 per annum.

WILLESDEN URBAN DISTRICT COUNCIL.—Medical Officer of Health and School Medical Officer. Salary £650 per annum.

WINWICK, LANCASHIRE COUNTY ASYLUM, Warrington.—Locum Tenens Medical Officer, unmarried, for about four or five months. Salary 4 guineas per week, with apartments, board, attendance, and washing.

YORK COUNTY HOSPITAL.—House Physician for six months. Salary at rate of £100 per annum, with board, residence, &c. Also House Surgeon for six months. Salary at rate of £100 per annum, with board, residence, &c.

Births, Marriages, and Deaths.

BIRTH.

ANDERSON.—On March 27th, at Newholme, Pitlochrie, the wife of John Anderson, M.B., C.M. Edin., of a daughter.

MARRIAGE.

RUSACK—WATSON.—On March 27th, at Trinity U.F. Church, Newport, Fife, Surgeon A. C. Rusack, R.N., son of William Rusack, St. Andrews, to Leny, youngest daughter of H. Watson, Newport.

DEATHS.

GILPIN.—On Oct. 24th, 1911, the result of an accident, at Dargaville, Northern Wairoa, N.Z., Robert Harrison Gilpin, M.R.C.S. Eng., L.R.C.P. Lond., and L.S.A., aged 48 years, eldest son of the late Captain R. Gilpin, R.N., of Plymouth.

MINNS.—On March 31st, Pembroke Robert Joseph Bunch Minns, M.D., of Thetford, aged 71 years.

Notes, Short Comments, and Answers to Correspondents.

SWEETMEAT MAKING AS HOMEWORK.

THE London County Council recently informed the Home Office of its opinion that the manufacture of sweetmeats and work of a similar character should be made subject to the provisions of Part VI. of the Factory and Workshop Act, 1901. The reason for this step is to be found in reports made by the medical officer of health for the borough of Islington, to the effect that in certain houses in his district he found "caramel wrapping" carried on under very insanitary conditions—in small sleeping rooms containing dirty beds, and even by persons suffering from infectious disease. The Factory Act of 1901 went further than the pre-existing law with regard to home employment and the supervision of the conditions under which work given out in factories for completion elsewhere might be done, for the control before provided was concerned only with the making of wearing apparel for sale. Sections 107 and 108 of the present Act bring under inspection through lists supplied to the district council, and, when required, to inspectors, the names and addresses of all persons directly employed by the occupier of a factory or workshop who do their work outside of it, as well as the places where they are employed, if the class of work to be performed by them has been made the subject of a Home Office Order made for that purpose under the Act. Hitherto, by an order made in 1901, Sections 107 and 108 have been applied to various operations incidental to the making, repairing, and cleansing of wearing apparel, curtains, and kindred substances, to fur pulling, to cabinet-making, and to making electro-plate and files. These two sections enable work to be stopped in places injurious or dangerous to the health of the persons employed in them. Section 110 makes it possible to stop the giving out of work to persons living in houses any inmate of which is suffering from notifiable infectious disease, and the Home Office Order defining the class of work in this case mentions the same trades as the order already referred to, except that it omits electro-plating and file-making. There is no apparent reason why the manufacture of foodstuffs should not be included in such protection as the law thus provides, but presumably preparations intended for human consumption, if made in factories or workshops, are usually completed in the buildings in which they pass through the earlier stages of their manufacture for other reasons besides the fact that wrapping or packing must generally be more easily and rapidly performed upon a large scale. With caramels it is apparently different, and it is hardly eulogistic of the quality of the sweetmeats referred to in the report of the medical officer of health for Islington to record that the work of enclosing these small sticky cubes in the grease-proof paper with which we associate them should be entrusted to children as homework. Presumably, however, those of the kind referred to emanate from workshops which cater for children of the poorer class only. "Sweets" of the cheaper sort have become more varied in appearance and nomenclature and more disposed to "ape their betters" in recent years. The middle-aged can remember the days when bull's-eyes with a strong flavour of peppermint, toffee, and curious flat semi-transparent delicacies then known as "gelatines," formed a large proportion of the stock-in-trade of the sweetstuff vendor who dealt in penny or half-penny worths. Sugar then was dearer and substitutes for butter less ready to hand. Now caramels and delicately tinted articles of the "fondant" class are not only displayed in profusion in shops where the customers must be the children of the working classes, but are even to be seen heaped upon costermongers' barrows in the streets where they are likely to command a sale. It is certainly in the highest degree desirable that these should be manufactured in as wholesome surroundings as is possible. The revelations that from time to time have been made as to the conditions in which "ice-cream" is made for children of the poorer-class show in what surroundings the manufacture of articles of diet of this class is likely to be conducted if not subjected to supervision, and if penalties are not provided for those who have no sense of duty in such matters.

"606."

To the Editor of THE LANCET.

SIR,—I would like to ask if anything is known in England of the method of using an emulsion of "606" in sterilised paraffin? Dr. Brausewetter, a German physician practising in Malaga, tells me he uses this emulsion successfully. The merit of this method is, he says, that *it causes no pain*. He injects it into the buttock muscles with strict antiseptic precautions. Dr. Brausewetter gives two injections with three months interval between, and he does not combine the treatment with a course of mercury.

I am, Sir, yours faithfully,

Madrid, March 24th, 1912. FREDERIC VIGARS, M.D. Brux.

THE MENTAL CONDITION IN RICKETS.

THE February number of *School Hygiene* has an interesting article on the Mental Condition in Rickets, by Dr. A. Gilmour. The children studied are divided into four groups. Mr. Douglas C. McMurtrie contributes an article on the education of cripples in the United States, and Dr. Duncan Forbes has a paper which describes the result of an investigation made at Brighton in 1909 into the case of all children who are dull, backward, or mentally deficient. The after-history of 13 children is recorded, of whom nine children are stated to be in regular work, but as their wages are not given it is impossible to estimate what their work is worth.

ELECTRO-MEDICAL APPARATUS.

THE Cavendish Electrical Co., Limited, of 130, Great Portland-street, London, W., have just issued a new catalogue of their electro-therapeutic apparatus. The catalogue is no mere illustrated list of electric appliances, but contains as well full descriptions in regard to their use in therapeutics. There are 250 pages thus instructively occupied. X ray applications and ionic medication have received particular attention.

NATIONAL INSURANCE ACT LITERATURE.

Dr. G. Wilkes.—The following list of works on the Insurance Act will prove useful to our correspondent:—"The National Insurance Act, 1911. Being a Treatise on the Scheme of National Health Insurance and Insurance against Unemployment created by that Act, with the Incorporated Enactments, full Explanatory Notes, Tables, and Examples." By Orme Clarke. With an Introduction by Sir John Simon. Butterworth and Co. Price 12*s.* 6*d.*—"National Insurance." By A. S. Comyns Carr, W. H. Stuart Garnett, and J. H. Taylor, M.A., M.B. With a Preface by the Right Hon. D. Lloyd George, M.P. Macmillan and Co. Price 6*s.* net.—Articles by Dr. W. A. Brend in THE LANCET, 1912: Feb. 10th, p. 383, I.; Feb. 17th, p. 447, II.; Feb. 24th, p. 524, III.; March 2nd, p. 598, IV.—"Can the Doctors Work the Insurance Act?" By E. W. Lowry, M.R.C.S. London: Watts and Co., 17, Johnson's-court, Fleet-street, E.C. Price 1*s.*—"Everybody's Guide to the Insurance Act." By Thomas Smith, Barrister-at-Law, of the Inner Temple; Joint Author of "Points for Guardians and their Officers." London: Charles Knight and Co., Limited. Price 1*s.* net.—"The Alphabet of the National Insurance Act, 1911." By C. G. Moran, Barrister-at-Law. London: Methuen and Co. Price 1*s.* net.

S. H. T.—1. A post-mortem examination is not essential. 2. Arsenic would remain in the ash.

H. M. T. is thanked for his letter and postscript. The inconsistency he points out is remarkable.

COMMUNICATIONS not noticed in our present issue will receive attention in our next.

A DIARY OF CONGRESSES.

WE shall publish this diary from time to time that our readers may have under their hands the dates of the approaching scientific Congresses. It is unnecessary to issue the lists of all these functions week by week, and we propose to make only such gatherings as will occur in the immediate future the subject of regular announcement. The following Congresses, Conferences, and Exhibitions are announced for April and May:—

April (London).—First Congress of Pure Food and Health Society of Great Britain.
,, 1st–7th (Tunis).—Twenty-second Congress of French-speaking Alienists and Neurologists.
,, 7th–14th (Athens).—Triennial International Congress of Orientalists.
,, 8th–13th (Rome).—Seventh International Congress of Dermatology and Syphilology.
,, 8th–15th (Johannesburg).—Thirteenth South African Medical Congress.
,, 9th–11th (Paris).—Congress of Physiotherapy for French-speaking Physicians.
,, 9th (Berlin).—Eleventh Congress of the German Society for Orthopædic Surgery.
,, 9th–13th (Giessen).—Congress on Study of Families, Inheritance, and Race Hygiene.
,, 10th–13th (Berlin).—Forty-first Congress of the German Surgical Society.
,, 12th–30th (London, Olympia).—Ideal Homes Exhibition.
,, 14th (Berlin).—Eighth Congress of the German Röntgen Society.
,, 14th–20th (Rome).—Seventh International Congress on Tuberculosis.
,, 15th–18th (Wiesbaden).—Twenty-ninth German Congress for Internal Medicine.
,, 21st–24th (Munich).—Twenty-sixth Meeting of the Anatomical Society.
May 7th–17th (Washington).—Ninth International Red Cross Conference.
,, 13th (London, Guildhall).—Conference on Diet in Schools.
,, 23rd (opens) (Philadelphia).—Twelfth International Congress on Navigation.
,, 23rd–25th (Hanover).—Nineteenth Meeting of the Union of German Laryngologists.
,, 25th–27th (Paris).—International Musical Festival.
May 26th–28th (Paris).—National Conference of the "Gouttes de Lait."
Whitsuntide (Portrush).—British Esperanto Congress
May 27th–June 1st (London).—Eighteenth International Congress of Americanists.
,, 29th–31st (Berlin).—Fifteenth Session of the German Society for Gynæcology.
, (London).—International Horticultural Exhibition.
May to October (London, Earl's Court).—Shakespeare's England.

Medical Diary for the ensuing Week.

SOCIETIES.

ROYAL SOCIETY OF MEDICINE, 15, Cavendish-square, W. (temporary address during building of new house).

THURSDAY.

OBSTETRICAL AND GYNÆCOLOGICAL SECTION (Hon. Secretaries—J. H. Targett, W. W. H. Tate), at 11, Chandos-street, W.: at 8 P.M.

Specimens:
Dr. Lockyer: Uterus Removed after Utriculoplasty.
Dr. Eden: Uterus and Appendages from Case of Primary Amenorrhœa.
Dr. Lewers: Broken Glass Catheter Removed from Bladder.
Dr. Maxwell: Fibroid Polypus becoming Carcinomatous.

Short Communications:
Dr. Glendining: Fibro-adenoma of the Ovarian Fimbria and the Question of an Accessory Ovary.
Dr. Lockyer: Embryotomy after Version for Placenta Prævia.
Dr. Barris: Retroplexion of Gravid Uterus complicated by Hæmaturia.
Dr. Williamson: Death of the Child caused by Rupture of Placental Veins during Parturition.

FRIDAY.

GENERAL MEETING OF FELLOWS at 4.45 P.M.
Election of Candidates for Fellowship.

UNITED SERVICES MEDICAL SOCIETY, Royal Army Medical College, Grosvenor-road, S.W.

WEDNESDAY.—5 P.M., Major H. E. M. Douglas, V.C., D.S.O., R.A.M.C.: The Special Weaknesses, from a Medical Aspect, of Volunteer Troops.—Lieut.-Col. J. F. Donegan, R.A.M.C.: Demonstration of a Field Operating Table.

WEST LONDON MEDICO-CHIRURGICAL SOCIETY, West London Hospital, Hammersmith-road, W.

FRIDAY.—8 P.M., Special Meeting. Exhibition of Cases, Skiagrams, Museum Specimens, and Bacteria. 9 P.M., Short Papers and Demonstrations. 9.45 P.M., General Discussion. Among others Mr. W. McAdam Eccles (President), Dr. F. J. Poynton, Dr. T. J. Horder, Dr. R. Morton, Mr. Ll. Williams, Mr. W. J. Midelton, Dr. Bernstein, and Dr. F. S. Palmer will take part in the proceedings.

WIMBLEDON AND DISTRICT MEDICAL SOCIETY, Johnston's Rooms, 6, Broadway, Wimbledon.

FRIDAY.—9 P.M., Dr. L. G. Guthrie: Epidemic Diarrhœa in Children.

LECTURES, ADDRESSES, DEMONSTRATIONS, &c.

POST-GRADUATE COLLEGE, West London Hospital, Hammersmith-road, W.

MONDAY.—10 A.M., Dr. Simson: Diseases of Women. 2 P.M., Medical and Surgical Clinics. X Rays. Operations. 2.30 P.M., Mr. Dunn: Diseases of the Eye.
TUESDAY.—10 A.M., Dr. Robinson: Gynæcological Operations. 2 P.M., Medical and Surgical Clinics. X Rays. Operations. Dr. Davis: Diseases of the Throat, Nose, and Ear. 2.30 P.M., Dr. Abraham: Diseases of the Skin.
WEDNESDAY.—10 A.M., Dr. Saunders: Diseases of Children. Dr. Davis: Operations of the Throat, Nose, and Ear. 2 P.M., Medical and Surgical Clinics. X Rays. Operations. Mr. B. Harman: Diseases of the Eye. Dr. Simson: Diseases of Women.
THURSDAY.—2 P.M., Medical and Surgical Clinics. X Rays. Operations. 2.30 P.M., Mr. Dunn: Diseases of the Eye.
FRIDAY.—10 A.M., Dr. Robinson: Gynæcological Operations. 2 P.M., Medical and Surgical Clinics. X Rays. Operations. Dr. Davis: Diseases of the Throat, Nose, and Ear. 2.30 P.M., Dr. Abraham: Diseases of the Skin.
SATURDAY.—10 A.M., Dr. Saunders: Diseases of Children. Dr. Davis: Operations of the Throat, Nose, and Ear. Mr. B. Harman: Diseases of the Eye. 2 P.M., Medical and Surgical Clinics. X Rays. Operations.

NORTH-EAST LONDON POST-GRADUATE COLLEGE, Prince of Wales's General Hospital, Tottenham, N.

MONDAY.—Clinics:—10.30 A.M., Surgical Out-patient (Mr. E. Gillespie). 2.30 P.M., Medical Out-patient (Dr. T. R. Whipham); Nose, Throat, and Ear (Mr. H. D. Gillies). 3 P.M., Clinical Pathology and Pathological Demonstration (Dr. W. H. Duncan).
TUESDAY.—Clinic; 2.30 P.M., Operations. Clinics:—Medical Out-patient (Dr. A. G. Auld.); Surgical (Mr. Howell Evans); Gynæcological (Dr. A. E. Giles). 3.30 P.M., Medical In-patient (Dr. A. J. Whiting).
WEDNESDAY.—Clinics:—2 P.M., Throat Operations (Mr. Gillies). 2.30 P.M., Children's Out-patient (Dr. T. R. Whipham); Skin (Dr. G. N. Meachen); Eye (Mr. R. P. Brooks). 3 P.M., X Rays (Mr. W. Steuart); Clinical Pathology and Pathological Demonstration (Dr. W. H. Duncan). 5.30 P.M., Eye Operations (Mr. Brooks).

THURSDAY.—2.30 P.M., Demonstration on Fevers (Dr. F. Thomson; at the North-Eastern Fever Hospital, St. Ann's-road, N.); Gynæcological Operations (Dr. A. H. Giles). Clinics:—Medical Out-patient (Dr. A. J. Whiting); Surgical (Mr. Carson). 3 P.M., Medical In-patient (Dr. G. F. Chappel).

FRIDAY.—2.30 P.M., Operations. Clinics:—Medical Out-patient (Dr. A. G. Auld); Surgical (Mr. E. Gillespie); Eye (Mr. R. P. Brooks). 3 P.M., Medical In-patient (Dr. R. M. Leslie); Clinical Pathology and Pathological Demonstration (Dr. W. H. Duncan).

LISTER INSTITUTE OF PREVENTIVE MEDICINE, Lecture Theatre of the Lister Institute, Chelsea Bridge-road, S.W.

FRIDAY.—5 P.M., Dr. W. Nicoll: Modern Aspects of Helminthology—Special Features of the Nematode Parasites of Man. (Lecture VI.)

SALFORD ROYAL HOSPITAL.

THURSDAY.—4.30 P.M., Dr. C. C. Heywood: Vomiting in Infancy. (Post-Graduate Course.)

OPERATIONS.

METROPOLITAN HOSPITALS.

MONDAY (8th).—London (2 P.M.), St. Bartholomew's (1.30 P.M.), St. Thomas's (3.30 P.M.), St. George's (2 P.M.), St. Mary's (2.30 P.M.), Middlesex (1.30 P.M.), Westminster (2 P.M.), Chelsea (2 P.M.), Samaritan (Gynæcological, by Physicians, 2 P.M.), Soho-square (2 P.M.), Gt. Northern Central (2.30 P.M.), West London (2.30 P.M.), London Throat (9.30 A.M.), Royal Free (2 P.M.), Guy's (1.30 P.M.), Children, Gt. Ormond-street (9 A.M.), St. Mark's (2.30 P.M.), Central London Throat and Ear (Minor 9 A.M., Major 2 P.M.).

TUESDAY (9th).—London (2 P.M.), St. Bartholomew's (1.30 P.M.), St. Thomas's (3.30 P.M.), Guy's (1.30 P.M.), Middlesex (1.30 P.M.), Westminster (2 P.M.), West London, (2.30 P.M.), University College (2 P.M.), St. George's (1 P.M.), St. Mary's (1 P.M.), St. Mark's (2.30 P.M.), Cancer (2 P.M.), Metropolitan (2.30 P.M.), London Throat (9.30 A.M.), Samaritan (9.30 A.M. and 2.30 P.M.), Throat, Golden-square (9.30 A.M.), Soho-square (2 P.M.), Chelsea (2 P.M.), Children, Gt. Ormond-street (9 A.M. and 2 P.M., Ophthalmic, 2 P.M.), Tottenham (2.30 P.M.). Central London Throat and Ear (Minor, 9 A.M., Major, 2 P.M.), Royal National Orthopædic (9.30 A.M. and 4 P.M.).

WEDNESDAY (10th).—St. Bartholomew's (1.30 P.M.), University College (2 P.M.), Royal Free (2 P.M.), Middlesex (1.30 P.M.), Charing Cross (3 P.M.), St. Thomas's 2 P.M.), London (2 P.M.), King's College (2 P.M.), St. George's (Ophthalmic, 1 P.M.), St. Mary's (2 P.M.), St. Peter's (2 P.M.), Samaritan (9.30 A.M. and 2.30 P.M.), Gt. Northern Central (2.30 P.M.), Westminster (2 P.M.), Metropolitan (2.30 P.M.), London Throat (9.30 A.M.), Cancer (2 P.M.), Throat, Golden-square (9.30 A.M.), Guy's (1.30 P.M.), Royal Ear (2 P.M.), Children, Gt. Ormond-street (9 A.M. and 9.30 A.M., Dental, 2 P.M.), Tottenham (Ophthalmic, 2.30 P.M.), West London (2.30 P.M.), Central London Throat and Ear (Minor, 9 A.M., Major, 2 P.M.).

THURSDAY (11th).—St. Bartholomew's (1.30 P.M.), St. Thomas's (3.30 P.M.), University College (2 P.M.), Charing Cross (3 P.M.), St. George's (1 P.M.), London (2 P.M.), King's College (2 P.M.), Middlesex (1.30 P.M.), St. Mary's (2.30 P.M.), Soho-square (2 P.M.), North-West London (2 P.M.), Gt. Northern Central (Gynæcological, 2.30 P.M.), Metropolitan (2.30 P.M.), London Throat (9.30 A.M.), Samaritan (9.30 A.M and 2.30 P.M.), Throat, Golden-square (9.30 A.M.), Guy's (1.30 P.M.), Royal National Orthopædic (9 A.M. and 3.30 P.M.), Royal Ear (2 P.M.), Children Gt. Ormond-street (9 A.M. and 2 P.M.), Tottenham (Gynæcological, 2.30 P.M.), West London (2.30 P.M), Central London Throat and Ear (Minor, 9 A.M., Major, 2 P.M.).

FRIDAY (12th).—London (2 P.M.), St. Bartholomew's (1.30 P.M.), St. Thomas's (3.30 P.M., Guy's (1.30 P.M.), Middlesex (1.30 P.M.), Charing Cross (3 P.M.), St. George's (1 P.M.), King's College (2 P.M.), St. Mary's (2 P.M.), Ophthalmic (10 A.M.), Cancer (2 P.M.), Chelsea (2 P.M.), Gt. Northern Central (2.30 P.M.), West London (2.30 P.M.), London Throat (9.30 A.M.), Samaritan (9.30 A.M. and 2.30 P.M.), Throat, Golden-square (9.30 A.M.), Royal National Orthopædic (3.30 P.M.), Soho-square (2 P.M.), Children, Gt. Ormond-street (9 A.M., Aural, 2 P.M.), Tottenham (2.30 P.M.), St. Peter's (2 P.M.)., Central London Throat and Ear (Minor, 9 A.M., Major, 2 P.M.).

SATURDAY (13th).—Royal Free (9A.M.), London (2 P.M.), Middlesex (1.30 P.M.), St. Thomas's (2 P.M.), University College (9.15 A.M.), Charing Cross (2 P.M.), St. George's (1 P.M.), St. Mary's (10 A.M.), Throat, Golden-square (9.30 A.M.), Guy's (1.30 P.M.), Children, Gt. Ormond-street (9 A.M. and 9.30 A.M.), West London (2.30 P.M.).

At the Royal Eye Hospital (2 P.M.), the Royal London Ophthalmic (10 A.M.), the Royal Westminster Ophthalmic (1.30 P.M.), and the Central London Ophthalmic (2 P.M.), Hospital operations are performed daily.

EDITORIAL NOTICES.

IT is most important that communications relating to the Editorial business of THE LANCET should be addressed *exclusively* "TO THE EDITOR," and not in any case to any gentleman who may be supposed to be connected with the Editorial staff. It is urgently necessary that attention should be given to this notice.

It is especially requested that early intelligence of local events having a medical interest, or which it is desirable to bring under the notice of the profession, may be sent direct to this office.

Lectures, original articles, and reports should be written on one side of the paper only, AND WHEN ACCOMPANIED BY BLOCKS IT IS REQUESTED THAT THE NAME OF THE AUTHOR, AND IF POSSIBLE OF THE ARTICLE, SHOULD BE WRITTEN ON THE BLOCKS TO FACILITATE IDENTIFICATION.

Letters, whether intended for insertion or for private information, must be authenticated by the names and addresses of their writers—not necessarily for publication.

We cannot prescribe or recommend practitioners.

Local papers containing reports or news paragraphs should be marked and addressed "To the Sub-Editor."

Letters relating to the publication, sale and advertising departments of THE LANCET *should be addressed "To the Manager."*

We cannot undertake to return MSS. not used.

MANAGER'S NOTICES.

TO SUBSCRIBERS.

WILL Subscribers please note that only those subscriptions which are sent direct to the Proprietors of THE LANCET at their Offices, 423, Strand, London, W.C., are dealt with by them? Subscriptions paid to London or to local newsagents (with none of whom have the Proprietors any connexion whatever) do not reach THE LANCET Offices, and consequently inquiries concerning missing copies, &c., should be sent to the Agent to whom the subscription is paid, and *not* to THE LANCET Offices.

Subscribers, by sending their subscriptions direct to THE LANCET Offices, will insure regularity in the despatch of their Journals and an earlier delivery than the majority of Agents are able to effect.

THE COLONIAL AND FOREIGN EDITION (printed on thin paper) is published in time to catch the weekly Friday mails to all parts of the world.

The rates of subscriptions, post free from THE LANCET Offices, have been reduced, and are now as follows:—

FOR THE UNITED KINGDOM.		TO THE COLONIES AND ABROAD.	
One Year	£1 1 0	One Year	£1 5 0
Six Months	0 12 6	Six Months	0 14 0
Three Months	0 6 6	Three Months	0 7 0

(The rate for the United Kingdom will apply also to Medical Subordinates in India whose rates of pay, including allowances, is less than Rs. 50 per month.)

Subscriptions (which may commence at any time) are payable in advance. Cheques and Post Office Orders (crossed "London County and Westminster Bank, Covent Garden Branch") should be made payable to the Manager, Mr. CHARLES GOOD, THE LANCET Offices, 423, Strand, London, W.C.

TO COLONIAL AND FOREIGN SUBSCRIBERS.

SUBSCRIBERS ABROAD ARE PARTICULARLY REQUESTED TO NOTE THE RATES OF SUBSCRIPTIONS GIVEN ABOVE.

The Manager will be pleased to forward copies direct from the Offices to places abroad at the above rates, whatever be the weight of any of the copies so supplied.

SOLE AGENTS FOR AMERICA—Messrs. WILLIAM WOOD AND CO., 51, Fifth Avenue, New York, U.S.A.

METEOROLOGICAL READINGS.

(Taken daily at 8.30 a.m. by Steward's Instruments.)

THE LANCET Office, April 2nd, 1912.

Date.	Barometer reduced to Sea Level and 32° F.	Direction of Wind.	Rain fall.	Solar Radio in Vacuo.	Maximum Temp. Shade.	Min. Temp.	Wet Bulb.	Dry Bulb.	Remarks.
Mar. 27	30·13	W.	...	107	60	50	49	51	Cloudy
" 28	30·04	W.	...	86	60	49	51	53	Cloudy
" 29	30·25	N.W.	...	102	56	42	42	45	Fine
" 30	30·04	N.W.	...	103	56	43	43	47	Cloudy
" 31	29·73	S.W.	...	65	49	41	42	45	Cloudy
April 1	29·68	N.E.	0·30	95	50	39	39	41	Cloudy
" 2	30·33	N.W.	...	94	55	36	38	41	Fine

The following journals, magazines, &c., have been received:—Bulletin de la Société de l'Internat des Hôpitaux de Paris, Revue de Gynécologie, St. Thomas's Hospital Gazette, St. George's Hospital Gazette, Medico-Surgical Journal of the Tropics, Annali Medicina Navale e Coloniale, British Journal of Inebriety, Review of Neurology and Psychiatry, Archiv für Experimentelle Pathologie und Pharmakologie, Transvaal Medical Journal, South African Medical Record, Revista de los Hospitales, Indian Medical Gazette, Canadian Journal of Medicine and Surgery, Bedrock.

Communications, Letters, &c., have been received from—

A.—Mr. J. W. Arrowsmith, Bristol; Anderson's College Medical School, Glasgow, Secretary of; Aberdeen University, Secretary of; Addenbrooke's Hospital, Cambridge, Secretary of; Dr. Alfred Ashby, Reading; Mr. F. W. Alexander, Lond.; Messrs. Attwood and Binsted, Lond.; Mr. Joseph Ambrose, Lond.; Mr. E. Arnold, Lond.

B.—Mr. C. A. G. Browne, Lond.; Messrs. Burroughs, Wellcome, and Co., Lond.; Bristol General Hospital, Secretary of; Dr. S. Barwise, Derby; Messrs. Barr, Son, and Thomas, Birmingham; British Oxygen Co., Lond., Messrs. C. Barker and Sons, Lond.; Mr. W. Bryce, Edinburgh; Dr. George S. Banks, Aberdeen; Dr. R. K. Brown, Lond.; Sir Lauder Brunton, Bart., Lond.; Mr. A. W. Brazier, Oxford; Dr. A. Bernard, Liverpool; Sir John Byers, Belfast; Dr. J. L. Bunch, Lond.; British Science Guild, Lond., Hon. Secretary of; Dr. A. H. G. Burton, Fazakerley; Dr. Philip Boobbyer, Nottingham; Mr. R. S. Bradbrook, Lond.; Bedford County Hospital, Secretary of; Dr. W. Blair Bell, Liverpool; British Medical Benevolent Fund, Lond., Hon. Secretary of; Mr. George Brown, Callington; Bouveret Turf Club, Bouveret, Secretary of.

C.—Mr. F. Crooke, Pershore; Mr. R. A. Caldwell, Bournemouth; Chester General Infirmary, Secretary of; Church Missionary Society, Lond., Secretary of; Dr. C. C. Cuthbert, Glasgow; Dr. Carey Coombs, Clifton; Crickhowell Rural District Council; Dr. W. F. Croll, Aberdeen; Mr. L. P. Chaliha, Dibrugarh; Messrs. Carnrick and Co., Lond.; Lieutenant D. G. Cooper, I.M.S., Bombay; Colonial Office, Lond.; Chelsea Hospital for Women; Mr. W. F. Cholmeley, Wolverhampton; Central London Throat and Ear Hospital, Secretary of; Mr. H. A. Collins, Croydon; Dr. H. J. Cooper, Lyme Regis; Dr. J. Cropper, Chepstow; Miss G. E. Chapman, Lond.; Dr. P. R. Cooper, Bowdon.

D.—Messrs. W. Dawson and Sons, Lond.; Mr. W. L. Davies, Swansea; Dr. Naunton Davies, Llandrindod Wells; Mr. R. W. Doyne, Lond.; Deutsches Zentralkomitee für Aerztliche Studienreisen, Berlin; Messrs. Dargue, Griffiths, and Co., Liverpool; Mr. Alexander Duke, Lond.; Mr. W. M. Davies, Barry.

E.—Essex County Asylum, Brentwood, Medical Superintendent of; Professor W. Einthoven, Leyden; Dr. R. J. Ewart, Middlesbrough; Mr. W. Engelmann, Leipzig; Dr. W. Arnold Evans, Bradford; Mr. C. Eastwick Field, Midhurst; East Sussex Hospital, Hastings, Secretary of; Mr. H. S. Elworthy, Ebbw Vale; Dr. John Eyre, Lond.

F.—Dr. R. D. B. Frew, Newton Heath; Mr. P. Finch, Sunbury-on-Thames; Dr. Field Hall, Lond.; Factories, Chief Inspector of, Home Office, Lond.

G.—General Hospital, Wolverhampton, Secretary of; Dr. A. Rudolf Galloway, Aberdeen; Grahame-White Aviation Co., Lond.; Mr. Ricardo Grassi, Milan; General Hospital, Birmingham, House Governor of; Mr. R. H. Gilpin, Dargaville, New Zealand; Guest Hospital, Dudley, Secretary of; General Hospital, Cheltenham, Secretary of; Dr. Major Greenwood, Lond.

H.—Mr C. A. Hoefftcke, Lond.; Miss Heslop, Lond.; Hospital for Women, Liverpool, Secretary of; Dr. George Hall, Newcastle-on-Tyne; Dr. F. Hernaman-Johnson, Bishop Auckland; Dr. C. W. Hutt, Warrington; Mr. W. C. Hanna, Colton, California; Dr. Arthur J. Hall, Sheffield; Mr. Edward Hindle, Cambridge; Dr. A. E. Harris, Lond.; Mr. Irvine Harle, Lond.; Mr. John Hatton, Bath; Dr. W. E. Heilborn, Bradford; Professor W. D. Halliburton, Bradford.

I.—Illuminating Engineering Society, Lond.

J.—Dr. G. J. Johnston, Dublin; Dr. J. Hervey Jones, Rottingdean; J. R.; J. S.; Mr. H. W. Jackson, Lond.; Mr. L. Joseph, Lond.

K.—Messrs. Knoll and Co., Lond.; Messrs. D. J. Keymer and Co., Lond.; Mr. H. Kimpton, Lond.; Mr. S. M. Kaka, Bombay; Mr. P. E. Kingsford, Ellesmere Port; Dr. Harry Kenwood, Lond.; Messrs. R. A. Knight and Co., Lond.; Mr. Frank Kidd, Lond.; Mr. J. Kennish, Lond.

L.—Mr. H. K. Lewis, Lond.; Leicester Infirmary, Secretary of; Leeds General Infirmary, Secretary of; Mr. C. M. Low, Missanabie, Ontario; Dr. R. Larkin, Lond.; Mr. E. W. Lowry, Lond.; Messrs. Leathwait and Simmons, Lond.; Loughborough and District General Hospital, Secretary of; Dr. A. Lankester, Worthing; Liverpool Medical Institution, Secretary of.

M.—Mr. C. F. Myers-Ward, Lond.; Messrs. Menzies and Co., Glasgow; Mr. R. Mosse, Berlin; Mr. J. F. Mackenzie, Edinburgh; Maxiphone, Ltd., Lond.; Messrs. A. Matz and Co., Berlin; Dr. J. D. McCrindle, Northampton; Dr. J. W. Mason, Hull; Messrs. Mead, Johnson, and Co., Jersey City, U.S.A.; Professor Middendorp, Groningen; Maltine Manufacturing Co., Lond.; Medical Correspondence College, Lond., Secretary of; Mr. J. Marston, Birmingham; Dr. C. H. Miller, Lond.; Dr. Dan McKenzie, Lond.; Mr. J. Penn Milton, Yelverton; Medical Defence Union, Lond., General Secretary of.

N.—Dr. A. G. Newell, Lahore; National Food Reform Association, Lond.; New York City, Department of Health of; Mr. P. C. Nandi, Calcutta; Nurses' Co-operation, Lond.

O.—Ozonair, Lond., Manager of; Oxford Medical Publications, Lond., Editor of.

P.—Messrs. Peacock and Hadley, Lond.; Messrs. G. Phillips and Co., Lond.; Sir R. Douglas Powell, Bart., Lond.; Dr. P. N. Panton, Lond.

Q.—Queensland, Government Statistician, Brisbane.

R.—Royal Infirmary, Glasgow, Secretary of; Dr. R. J. Rowlette, Dublin; Dr. John Robertson, Birmingham; Royal Sanitary Institute, Lond.; Dr. W. G. Aitchison Robertson, Edinburgh; Dr. William Russell, Edinburgh; Royal Society of Medicine, Lond., Secretary of; Royal Berkshire Hospital, Reading, Secretary of; Royal Infirmary, Oldham, Secretary of; Research Defence Society, Lond., Hon. Secretary of; Royal Society for the Prevention of Cruelty to Animals, Lond., Secretary of; Royal Academy of Medicine in Ireland, Dublin; Dr. J. A. Rivière, Paris; Royal Society, Lond.

S.—St. John's Wood and Portland Town Dispensary, Lond., Secretary of; St. Andrew's Hospital, Northampton, Clerk to the; Scholl Manufacturing Co., Lond.; St. George's Retreat, Burgess Hill, Medical Superintendent of; Smith's Advertising Agency, Lond.; Sheffield University, Registrar of; Mr. W. Stirling, jun., Manchester; Southampton Guardians, Clerk to the; Scout Motors, Salisbury, Manager of; Messrs. Schimmel and Co., Lond.; Dr. H. Schütze, Würzburg; Dr. P. G. Sobanki, Dubai; Dr. Norman J. Sinclair, Forfar; Mr. Walter Seton, Lond.; Messrs. W. H. Smith and Son, Lond.; Messrs. G. Street and Co., Lond.; Mr. Robinett Scruby, Lond.; Dr. J. Saffley, Annan; Dr. A. F. S. Sladden, Lond.; Rev. L. Savatard, Darwen.

T.—Dr. E. H. Taylor, Sydney; *Times* Book Club, Lond.; Mr. H. M. Tod, Lond.; Mr. M. E. Thomson, Stockton; Mr. H. H. Tidswell, Torquay.

V.—Victoria Hospital, Bangalore, Medical Officer of; Victoria University of Manchester; Dr. Frederic Vicars, Madrid; Messrs. J. W. Vickers and Co., Lond.; Mr. H. M. Vyall, Lond.

W.—Mr. P. Wador, Lond.; Woodhall Spa Co., Secretary of; Messrs. Wills, Lond.; Messrs. R. F. White and Son, Lond.; Dr. W. H. Wynn, Birmingham; *Wiltshire Advertiser*, Devizes, Editor of; *The Welldoer*, Liverpool, Editor of; Dr. E. Walford, Cardiff; Dr. Walter G. Walford, Lond.; West Riding Asylum, Burley-in-Wharfedale, Secretary of; Messrs Wright and Son, Bristol; Captain Beauchamp Williams, I.M.S., Lond.; Mr. Griffin Wilkes, Lond.

Letters, each with enclosure are also acknowledged from—

A.—Ayr District Asylum, Medical Superintendent of; Messrs. Allen and Hanburys, Lond.

B.—Mr. J. Barker, Lond.; Mr. T. R. Brookland, Rochester; Dr. J. C. Bowie, Bixter; Mr. L. A. Bidwell, Lond.; Messrs. P. C. Burton and Co., Lond.; Dr. E. Burnet, Leamington.

C.—Dr. H. W. Crowe, Yelverton; Messrs. Cooke and Co., Lond.; Mr. C. E. Cowen, Uitenhage; Messrs. J. and A. Carter, Lond.; Mr. C. Clarke, Haywards Heath; Messrs. E. Cook and Co., Lond.; C. T. D.

D.—Dr. W. T. Dougal, Pittenweem; Mr. E. Darke, Kingston-on-Thames; Dunbarton County Council, Treasurer to the; Darlington Hospital, Secretary of.

E.—E. T. C.

F.—Dr. T. C. Fisher, Torquay; Dr. G. FitzGerald, Manchester.

G.—Mr. M. Gray, Lond.; Messrs. W. Grisewood and Son, Liverpool; Messrs. W. and A. Gilbey, Lond.; Dr. R. M. Gil, Malaga; G. B. M.; Messrs. Grindlay, Groom, and Co., Bombay.

H.—Dr. R. G. Hebb, Lond.; Messrs. C. J. Hewlett and Son, Lond.; Mr. L. Hardy, Lond.; Mr. J. T. Hyatt, Shepton Mallet.

I.—Messrs. Ingram and Royle, Lond.

J.—Mr. R. Jayaraswami, Kajahmundry; J. N. M.; Mr. T. D. Jago, Lond.; J. F. R.; Dr. H. Lewis Jones, Lond.

K.—Miss Kemp, St. George's, Salop; Kreochyle Co., Lond.

L.—Mr. T. S. Logan, Exminster; Dr. T. A. Leishman, Brechin; "Locum," Leicester; Miss Lafford, Liverpool.

M.—Mr. H. McLeod, Edinburgh; Mr. R. Merck, Lond.; Dr. K. Manson, Lond.; Manchester Corporation, Treasurer to the; Messrs. Macniven and Wallace, Edinburgh; Mr. A. Minns, Thetford; Medicus, Forest Hill; Dr. L. W. D. Mair, Lond.; Dr. J. F. Macdonald, Bishop Auckland; Malvern Hydropathic Establishment, Secretary of; Messrs. Meister, Lucius, and Brüning, Lond.

N.—Messrs. Neale and Wilkinson, Lond.

P.—Dr. T. W. Parkinson, Lond.; Messrs. E. T. Pearson and Co., Lond.; P. A. H.; Mr. Peacey, Lond.

R.—Dr. E. B. Randall, Lond.; Dr. W. W. Rorke, Lond.; Rochdale Guardians, Clerk to the; Dr. F. E. Ramsford, Dublin; Ruebury Sanatorium, Osmotherly, Medical Superintendent of.

S.—Mr. J. N. Sen, Jayarampur; Messrs. Spiers and Pond, Lond.; Messrs. W. H. Smith and Son, Birmingham; Mr. H. W. Scriven, Lond.; Dr. J. Scott, Lond.; St. Mary's Hospital for Women and Children, Lond., Secretary of.

T.—Mr. E. L. Tattersall, Claytonle-Moors; Teignmouth Hospital, Hon. Secretary of.

V.—Messrs. Van Houten, Lond.

W.—Mr. G. Watson, Ipswich; Messrs. Widenmann, Broicher, and Co., Lond.; Mr. W. Watson, Dromore; Messrs. F. Williams and Co., Lond.

Z.—Messrs. A. and M. Zimmermann, Lond.

EVERY FRIDAY. THE LANCET. PRICE SIXPENCE.

SUBSCRIPTION, POST FREE.

FOR THE UNITED KINGDOM.*		TO THE COLONIES AND ABROAD.	
One Year	£1 1 0	One Year	£1 5 0
Six Months	0 12 6	Six Months	0 14 0
Three Months	0 6 6	Three Months	0 7 0

* *The same rate applies to Medical Subordinates in India.*

Subscriptions (which may commence at any time) are payable in advance.

ADVERTISING.

Books and Publications ... ... / Official and General Announcements / Trade and Miscellaneous Advertisements and Situations Vacant ...	Five Lines and under £0 4 0 / Every additional Line 0 0 6

Situations wanted: First 30 words, 2s. 6d.; per additional 8 words, 6d.
Quarter Page, £1 10s. Half a Page, £2 15s. An Entire Page, £5 5s.
Special terms for Position Pages.

Advertisements (to insure insertion the same week) should be delivered at the Office not later than Wednesday, accompanied by a remittance.
Answers are now received at this Office, by special arrangement, to advertisements appearing in THE LANCET.
The Manager cannot hold himself responsible for the return of testimonials, &c., sent to the Office in reply to advertisements; copies only should be forwarded.
Cheques and Post Office Orders (crossed "London County and Westminster Bank, Covent Garden Branch") should be made payable to the Manager, Mr. CHARLES GOOD, THE LANCET Office, 423, Strand, London, to whom all letters relating to Advertisements or Subscriptions should be addressed.
THE LANCET can be obtained at all Messrs. W. H. Smith and Son's and other Railway Bookstalls throughout the United Kingdom. Advertisements are also received by them and all other Advertising Agents.